

1Supporting Statement A

USA National Phenology Network – The Nature’s Notebook Plant and Animal Observing Program

OMB Control Number 1028-0103

Terms of Clearance: None

General Instructions

A completed Supporting Statement A must accompany each request for approval of a collection of information. The Supporting Statement must be prepared in the format described below, and must contain the information specified below. If an item is not applicable, provide a brief explanation. When the question “Does this ICR contain surveys, censuses, or employ statistical methods?” is checked "Yes," then a Supporting Statement B must be completed. OMB reserves the right to require the submission of additional information with respect to any request for approval.

Specific Instructions

Justification

- 1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.**

The mission of DOI includes the mandate to protect and manage the Nation’s natural resources and provide scientific and other information about those resources. To meet its stewardship responsibilities, as conveyed by numerous legislative authorities, the DOI is mandated to estimate the availability and abundance of fish and wildlife resources, determine the distribution and abundance of migratory and resident birds, conduct inventories of all public lands and their resources, and implement programs for endangered and threatened wildlife and plants, among other responsibilities. DOI relies upon biological monitoring information to achieve its mission, measure its success in responding to these legislative mandates, and determine its progress toward meeting DOI resource protection goals. In turn, the USGS mission includes requirements to collect natural resource information and conduct systematic analyses and investigations to inform natural resource decision-making. USGS continues to improve the quality and usefulness of its long-term data sets, and where appropriate works with partners (other federal, state, tribal, and local governments; academic and research institutions; and private organizations) to acquire the necessary data.

The USA National Phenology Network (USA-NPN), established in 2007 by USGS in collaboration with other governmental and non-governmental organizations, is a national-scale science and monitoring initiative focused on phenology (i.e., the study of seasonal life-cycle events such as leafing, flowering, reproduction and migration) as a tool to understand how plants, animals and landscapes respond to environmental variation and change. Information collected by the USA-NPN through its national observing system, *Nature's Notebook*, is used by researchers and federal, state and local agencies and resource managers to: understand and support climate change vulnerability assessments and adaptation; inform management and assessment of habitats and plant and animal species; identify, assess, and forecast change in ecosystems and effects of climate change; identify relationships between environments and wildlife and human health; integrate data and products for science-based stewardship of natural resources; and provide opportunities for public stewardship and engagement.

Relevant acts include the Organic Act, 43 U.S.C. 31 et seq., 1879; Fish and Wildlife Coordination Act, 1934; Fish and Wildlife Act, 1956; Migratory Bird Treaty Act, 1918; Migratory Bird Conservation Act, 1900; Federal Land Policy and Management Act, 1976; Fish and Wildlife Improvement Act, 1978; Endangered Species Act, 1973; Marine Mammal Protection Act, 1972; Great Lakes Fishery Act, 1956; Nonindigenous Aquatic Nuisance Prevention and Control Act, 1990; Water Resources Development Act, 1990; and other authorizations conveyed to the U.S. Geological Survey.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection. Be specific. If this collection is a form or a questionnaire, every question needs to be justified.

Information collected through *Nature's Notebook* is used by scientists, resource managers, educators, communication specialists, non-profit organizations, human health organizations, science networks and the public to make science-based decisions about resource management and to adapt to variable and changing climates and environments. This is a relatively new endeavor, but information on the timing of phenological events is important for human health (allergens and infectious diseases), human recreation (wildflower displays and fall colors), agriculture (planting and harvest times, pest control), management of natural resources (water and timber), understanding hazards (monitoring and prediction of drought and fire risk), and conservation (abundance and diversity of plants and animals).

For all species, we collect data on the onset, duration, peak and end of phenophases. For plants, the primary phenophases are: leaves (which sheds light on plant physiology, carbon cycling and feedbacks to climate change), flowers (which sheds light on pollination, resource availability, and reproduction), and fruits (which sheds light on reproductive success and food availability for animals, including humans). For animals, the primary phenophases are: activity (which sheds light on distribution and migration), feeding (which sheds light on

trophic interactions) and reproduction (which sheds light on timing and success of reproduction).

Seventeen peer-reviewed articles leveraging contemporary data and 62 publications leveraging legacy lilac and honeysuckle data, have been published. Data from *Nature's Notebook* has supported advances in understanding changes in the timing of spring, plant physiology, plant-bird interactions, as well as shed light on the complex relationships between temperature and precipitation in controlling leafing, flowering and fruiting in Mediterranean systems. Natural resource management agencies use data collected and stored in *Nature's Notebook* to schedule field seasons, time flooding to favor target species and slow the spread of invasives and project changes in plant flowering times. City managers rely on data on the timing of leaf fall to schedule street sweeping, thereby preventing eutrophication of local lakes.

While we have made observation of many species possible through our system, we focus observer effort on the most useful species at the national scale, through a series of campaigns, described on the project website.

- 3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden and specifically how this collection meets GPEA requirements.**

USA-NPN developed and maintains the program *Nature's Notebook* by which observers participate in this national phenology observation and reporting system for both plants and animals. Participants may contribute phenology information to *Nature's Notebook* through a browser-based web application or via mobile applications for iPhone and Android operating systems, meeting GPEA requirements. The web application interface consists several components: user registration, a searchable list of 1,016 plant and animal species which can be observed; a "profile" for each species that contains detailed information about the species including its description and the appropriate monitoring protocols; a series of interfaces for registering as an observer, registering a site, registering plants and animals at a site, generating datasheets to take to the field, and a data entry page that mimics the datasheets. Datasheets and species profiles are generated automatically from a database for efficiency and accuracy. Participants can choose to collect information using data sheets on a day-by-day basis for one species or they may collect information species-by-species for one day. Regardless of which method respondents choose, questions on both datasheets are identical. The mobile interfaces have the same functionality, though they do not generate datasheets (because they are not needed). In all aspects of developing our program and associated infrastructure we have endeavored to maximize use of online and mobile technologies to facilitate efficient data entry and dissemination. We do not accept paper data submissions.

Our user interfaces are dynamic and growing, as is the underlying database, because we are

continuously enhancing it for efficiency, simplicity and in response to stakeholder needs. For example, we receive requests to develop profiles and monitoring protocols for new species each year, so the number of unique datasheets is growing on a species by species basis. This said, we ask a standard set of questions on all forms, and there are redundancies across forms depending on the type of organism (to enable phenological comparisons across similar taxa). For example, most deciduous trees (such as red maple and sugar maple) have the same observation protocols. To simplify OMB review, we have appended a spreadsheet naming the 85 unique observation protocols across all taxa.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.

No other organization gathers phenology information across taxa with scientifically rigorous approach and scale of the USA National Phenology Network. There are numerous other phenology monitoring efforts that capitalize on volunteers or “citizen scientists,” or that integrate professional and volunteer monitoring as does *Nature’s Notebook*. However, these efforts focus on specific taxa (e.g., eBird and the Bird Banding Lab focus on birds; Frogwatch USA and the North American Amphibian Monitoring Program focus on amphibians), particular life stages (e.g., Journey North focuses on migration; Nestwatch focuses on reproduction) or particular geographic regions (e.g., Western Hummingbird Partnership). Broadly, phenological responses to environmental variation occur across taxa and life stages, and vary through time and across space. The USA-NPN was established to complement existing efforts (with a unique multi-taxa, continental-scale approach) and to fill gaps in available information, to support our understanding of biological response to environmental variation and change.

5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

This information does not affect small businesses or other small entities.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

Not collecting this information would leave the Federal Government unable to characterize the status, trends and phenological processes for many native organisms, including migratory and resident birds, mammals, reptiles and amphibians, and fishes and their food resources and habitats, which would constrain its ability to explore the causes of changes in species abundance and/or distribution. Thus the Secretary of the Interior would be hampered in her ability to fulfill his legal requirements under the Acts listed in Question 1.

7. Explain any special circumstances that would cause an information collection to be

conducted in a manner:

- * requiring respondents to report information to the agency more often than quarterly;**
- * requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- * requiring respondents to submit more than an original and two copies of any document;**
- * requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;**
- * in connection with a statistical survey that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- * requiring the use of a statistical data classification that has not been reviewed and approved by OMB;**
- * that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- * requiring respondents to submit proprietary trade secrets, or other confidential information, unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

There are no circumstances that require us to collect information in a manner inconsistent with OMB guidelines. While observers tend to provide information more often than quarterly, ongoing submission burden is low, and participation is not required at any specified interval.

- 8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and in response to the PRA statement associated with the collection over the past three years, and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.**

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years — even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.

The 60-day FRN was published 8/7/2015 at volume 80, page 47511. Public comment period closes Oct 6, 2015.

We consulted with the individuals listed in the table to obtain their views on the information presented in our instrument. Several modifications to the format and design of the instrument were suggested during the pilot period and these have been incorporated. For example, we modified protocols to accommodate drought-deciduous trees (allowing multiple instances peak leaf out during the year), based on pilot work in California. Several usability studies, one led by Suzanne Allard, resulted in major changes to the interfaces, including changes to website language, workflow and page layout.

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9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

Non-monetary awards (valued less than \$15.00) and thank-you cards are occasionally provided to participants in acknowledgement of their. These tokens of appreciation are provided in accordance with best practices for citizen science, to support retention of observers.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

No assurance of confidentiality is given to respondents

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

The collection does not include sensitive or private questions.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- * Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.**
- * If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.**
- * Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here.**

We anticipate approximately 6,378 users will register each year and estimate that it takes 3 minutes to complete the registration form. We anticipate 6,378 users will read the guidelines for observing, which takes an estimated 10 minutes to complete. We estimate that 10% of users watch the complete set of training videos (638 users viewing 83 total minutes of content). For observations, we expect to receive 2,407,120 responses annually, and estimate that observation and reporting time will average 2 minutes. Time estimates in each case are based on informal trials of new users and/or staff; response numbers are estimated future 3-year averages, based on linear projections of data submitted since 2010.

We estimate the dollar value of the annual burden hours to be \$2,773,483 (based on the National Compensation Survey: Occupational Wages in the United States for March 2015 published by the Bureau of Labor Standards Occupation and Wages on June 10, 2015

http://www.bls.gov/schedule/archives/ecec_nr.htm, inclusive of both hourly wages and benefits).

The particular values utilized are:

1. Civilian workers: \$33.49
2. State and local government workers: \$44.25

	Number of Responses	Minutes per response	Burden Hours	Burden Cost
Members of the Public (Civilian workers)				
Register/read guidelines	5,740	13	1,244	\$41,662
Watch training videos	574	83	794	\$26,592
Submit data	2,166,408	2	72,214	\$2,418,447
State and local government workers				
Register/read guidelines	638	13	138	\$6,117
Watch training videos	64	83	88	\$3,918
Submit data	240,712	2	8,024	\$355,051
Total	2,414,136		82,503	\$2,863,061

13. Provide an estimate of the total annual non-hour cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden already reflected in item 12.)

- * The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information (including filing fees paid for form processing). Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.
- * If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.
- * Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

We estimate the total annual non-hour burden cost to be \$11,274.

Although most observers participating in Nature’s Notebook typically already possess skills and materials necessary for participation, respondents are encouraged to “mark” the items they are observing in order to ensure consistency. The items below are suggested for observers to use in order to mark their sites or plants.

Non-Hour Cost Burden			
	Cost*	Estimated Number of Respondents Expected to Use	Non-Hour Burden Cost
Clipboard	\$2.19	4,337	\$9,499
Pencils	\$0.10	4,337	\$434
Flags*	\$0.05	1,276	\$64
Markers	\$0.10	1,276	\$128
Stakes	\$0.30	1,276	\$383
Tags	\$0.30	1,276	\$383
Popsicle Sticks	\$0.30	1,276	\$383
Average Marking Material Cost	\$0.19		
Cost Per Response	\$2.48	Total Non-Hour Burden Cost	\$11,274

*Unit costs estimated from officedepot.com

**We estimate that 68% of our users will collect data using pencil and paper, whereas the remaining 32% will use the mobile application (3-year average from 2016-18 projection)

***We estimate one-fifth of our observers will use either flags, markers, stakes, tags, or popsicle sticks.

14. Provide estimates of annualized cost to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information.

Table 4. Annual Cost to the Federal Government (Add rows as necessary)

We estimate the total annual cost to the Federal Government is \$348,739, estimated as follows:

Federal Position	Grade/ Step	Hourly Rate	Hourly Rate incl. benefits (1.5 x hourly pay rate)	Estimated time spent by Federal Employees (annualized hours)	Estimated Federal employee salary/benefit annualized costs
Program Coordinator	15/8	\$60.06	\$90.09	208	\$18,738.72
				Total	\$18,738.72

In addition to the above salary for one federal employee, program infrastructure and development are conducted via a 5-year Cooperative Agreement with the University of Arizona. The annual estimated expense for implementation and maintenance of *Nature's Notebook* via the Cooperative Agreement is \$330,000.00. Cooperator salaries and operational expenses include planning and management, development of IT infrastructure (programming, database management, server maintenance), partnership development, as well as recruitment, training and retention of observers.

Total Annual Cost to the Federal Government	
Program Coordinator	\$18,739
Operational Costs	\$330,000
Total	\$348,739

15. Explain the reasons for any program changes or adjustments in hour or cost burden.

Based on three additional years of program operation, we are able to provide more accurate estimates of participation in terms of number of participants and number of records submitted. We expect more than two million participants in the coming year taking our previously approved 501,130 to 2,414,136. This will increase our burden hours from 17,032 to 82,503 hours. The non-hour burden costs were not included in our prior submission, but have been included in this submission at \$11,274, about \$ 1.96 per responder.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

Organismal phenology data are available since 2008, though historical datasets integrated into the database include data from as early as 1956. All raw, summarized and quality control flagged data are available upon demand and are presented in an electronic format on the project web site. Peer-reviewed publications created by project staff and collaborators are described above. Summary reports are published in scientific journals or other USGS outlets (e.g., open-file reports); published reports are compliant with USGS Fundamental Science Practice; reports are produced at periodic intervals, every 1 to 5 years. Presentations are made at scientific conferences as appropriate.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

We will display the OMB control ID and expiration date on the registration form. Please see document named NN Registration.docx on page 3 where the user marks agreement.

18. Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions."

There are no exceptions to the certification statement.