

# **Survey of Surveillance Records of *Aedes aegypti* and *Aedes albopictus* from 1960 to Present**

Request for OMB Approval of a New Emergency Information Collection

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Supporting Statement A

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## 1. Circumstances making the Collection of Information Necessary

**Goal:** The goal of this survey is to collect county-level surveillance records of *Aedes* mosquitoes in Florida, Georgia, and North Carolina that reported the Zika virus in May 2015.

**Intended use of the resulting data:** Information will aid in 1) targeting vector control efforts to prevent mosquito-borne Zika virus transmission in the continental U.S. and 2) targeting future vector surveillance efforts. Further spread to other countries in the region is likely. Local vector-borne transmission of Zika virus has now been documented in Florida and Zika virus infections have been reported in travelers returning from areas with active Zika virus transmission. Zika virus infection also has occurred through sexual transmission, which may pose an additional risk to non-traveling pregnant women whose partners may have traveled to areas at high risk for Zika virus.

**Methods:** Surveys will be distributed to vector control professionals, entomologists, and public health biologists in order to gather information on the distribution of *Aedes aegypti* and *Ae. albopictus*.

**Subpopulation to be surveyed:** Vector control professionals, entomologists, and public health biologists returning to the United States likely will increase, and sexual transmission from male travelers to their sex partners in the United States will likely continue to occur. In addition, among travelers returning to the United States likely will increase, and sexual transmission from male travelers to their sex partners in the United States will likely continue to occur.

**How data will be analyzed:** Distributions of each mosquito will be developed using data collected from the previous survey and from the published literature. The data collected from this survey will be used 1) to evaluate performance of the species distribution models, and 2) to provide updated information on where Zika vectors were collected in recent years.

mosquito-borne local transmission may occur in states where *Aedes aegypti* or *Ae. albopictus* mosquitoes are present.

In February 2016, OMB issued emergency clearance for a county-level survey of vector surveillance records (OMB Control No. 0920-1101, expiration date 8/31/2016) and CDC initiated a survey distributed to vector control professionals, entomologists, and public health professionals in order to develop county- and sub-county-level species distribution maps and models for the prevalence of *Aedes aegypti* and *Ae. albopictus* (the vectors of Zika virus) in the United States. The results of the initial survey were published online in June of 2016 (Hahn, M.B., et al. (2016) *J. Med. Entomol.* 53: 1176-1191). The survey revealed that we are lacking records from recent years of both species from areas where we expect to find Zika vectors based on historical records and environmental suitability. It is likely that the reason for this is because from 2004-2015 most vector surveillance focused on vectors of West Nile virus (*Culex spp.*), rather than Zika vectors. The collection of the former relies on collection techniques that are not optimized to capture the latter.

To better approximate where these Zika vectors are likely to be encountered in the continental U.S., using the data from the previous survey, CDC intends to develop a statistically-driven model of each species' distribution. A follow up survey of entomologists, vector control professionals and public health biologists will be conducted to evaluate the performance of the model and to provide a more accurate representation of counties from which the Zika vectors have been reported. The follow up survey is expected to yield new information beyond what was collected in the spring of 2016 because 1) respondents have had more time to mine their historical records and the current survey dates back further in time to capture this information, and 2) with the emergence of Zika virus, many mosquito surveillance efforts have been expanded to include trapping methods sufficient to capture Zika vector mosquitoes. Information collected as part of this survey will be used to update species distribution maps for the United States (e.g., showing where the mosquitoes *have been* reported) and to assess the accuracy of a model aimed at identifying where these vectors can survive and reproduce (e.g., showing where the mosquitoes are *expected to be* reported).

The resulting maps will aid in 1) allocating resources for vector control efforts to prevent mosquito-borne Zika virus transmission in the continental U.S. and 2) targeting future vector surveillance efforts. In addition, this information will improve the quality of information on vector distributions that CDC is distributing to the public.

This information collection request is authorized by Section 301 of the Public Health Service Act (42 U.S.C. 241) (**Attachment A**).

## **2. Purpose and Use of Information Collection**

The purpose of the mosquito surveillance survey (**Attachment C**) is to collect county- and sub-county-level records for *Aedes aegypti* and *Ae. albopictus*, the vectors of Zika virus. This information will be used to update species distribution maps for the United States. Such information improves the accuracy of information CDC communicates to the public regarding where vectors have been found historically and in recent years. Data obtained from the previous survey and from literature review will be used to develop a statistical model aimed at identifying where these vectors can survive and reproduce. The data obtained from the proposed survey will be used to evaluate the statistical model of where mosquitoes should be found and will be used to update reported distribution maps. We believe that because of very recent changes in vector surveillance aimed at capturing *Ae. aegypti* and *Ae. albopictus* and with additional time to review historical records, additional records will be reported using this revised survey. The resulting maps and models will: inform the public and policy makers of the known distribution of these vectors, identify gaps in vector surveillance, and target allocation of surveillance and prevention resources (including funds allocated through the Epidemiology and Laboratory Capacity Cooperative Agreement with States).

### **3. Use of Improved Information Technology and Burden Reduction**

One-hundred percent of burden hours will be incurred by respondents using improved information technology.

The survey will be distributed via email and carried out using an online survey tool.

### **4. Efforts to Identify Duplication and Use of Similar Information**

Data were pulled from ArboNet. These data were found to be lacking for the species of interest.

As mentioned in section A.1, a previous county-level survey of vector surveillance records was undertaken in February, 2016. The previous survey aimed to describe the current reported distribution of the Zika virus vectors *Aedes aegypti* and *Ae. albopictus*. The survey revealed that we are lacking records from recent years of both species from areas where we expect to find Zika vectors based on historical records and environmental suitability. It is likely that the reason for this is because from 2004-2015 most vector surveillance focused on vectors of West Nile virus (*Culex spp.*), rather than Zika vectors.

As part of the Zika response, efforts to identify *Ae. aegypti* and *Ae. albopictus* in the continental US were substantially enhanced during 2016 and funding has been provided to states to continue to enhance surveillance for these vectors. By repeating the survey, we will have a more complete assessment of where these vectors are currently being reported. Such information will

aid in 1) allocating resources for vector control efforts to prevent mosquito-borne Zika virus transmission in the continental U.S. and 2) targeting future vector surveillance efforts.

Although we will contact the same group of respondents from the previous survey, we have included a question at the beginning of the survey asking if the respondent had submitted data to CDC previously and if so they can select the mechanism through which they submitted the information (see Q11-12 in Attachment C). Previously submitted information will not be captured in this survey. Notably, the current survey includes additional years that were not included previously (1960-present, vs. 2000-early 2016). We have modified the coverletter for the survey to emphasize that we are seeking new information, why we are repeating the survey and providing an alternative data collection tool to minimize the effort for respondents.

## **5. Impact on Small Businesses or Other Small Entities**

The collection of information does not primarily involve small entities. However, for the small entities involved, the burden imposed by CDC's information collection requirements have been reduced to the minimum necessary for CDC to meet its regulatory and public health responsibilities.

## **6. Consequences of Collecting the Information Less Frequently**

This is a one-time information collection. CDC activities regarding the domestic Zika virus response would be significantly hindered if it were not able to collect the information at the frequency necessary to prohibit the spread of this disease.

Collecting information less frequently than the CDC recommendations indicate will interfere with the public health actions required to contain and respond to Zika virus transmission and to do everything possible to limit, if not stop, deaths and birth defects due to this disease. Given the limited information available on Zika virus disease during pregnancy, information is needed to inform CDC recommendations.

## **7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5**

This request fully complies with the guidelines in 5 CFR 1320.5.

## **8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency**

A. A 60-day Federal Register Notice was published in the Federal Register on August 10, 2016, Volume 81, No. 154, p. 52876 (Attachment B). One non-substantive public comment was received. A standard reply was sent.

B. There was no consultation outside of the Agency.

## **9. Explanation of Any Payment or Gift to Respondents**

There is no payment or gift to respondents.

## **10. Protection of the Privacy and Confidentiality of Information Provided by Respondents**

The Privacy Act is applicable. Records are covered under CDC Privacy Act System of Records Notice (SORN) No. 0920-0136 “Epidemiologic Studies and Surveillance of Disease Problems” and SORN No. 09-20-0113, “Epidemic Investigation Case Records Systems Notice.”

The survey will be conducted using Google Forms. All captured information will be downloaded regularly (and removed from the Google Drive) and transferred to an encrypted format on a MS SQL server within CDC’s network. Access to this information will only be obtainable by personnel with the correct user rights. MS SQL server’s security model will be used to authenticate users. The system will be compliant with all of CDC’s network security policies.

## **11. Institutional Review Board (IRB) and Justification for Sensitive Questions**

### IRB Approval

The protocols and tools used to conduct this information collection request have been reviewed and approved by NCEZID’s Human Subjects Advisor, who determined that this data collection does not meet the definition of research under 45 CFR 46.102(d). IRB review is not required (Attachment D).

If the forms are subsequently used for research activities, applicable IRB approvals and PRA clearances must be obtained for these new information collections.

### Justification for Sensitive Questions

No sensitive questions will be asked in the survey.

## **12. Estimates of Annualized Burden Hours and Costs**

A. Estimated Annualized Burden Hours

Type of Respondent	Form Name	No. of Respondents	No. of Responses per Respondent	Average Burden per Response (in hours)	Total Burden Hours
Vector control professionals, entomologists, and Public health professionals	Survey of county-level surveillance records of <i>Aedes aegypti</i> and <i>Aedes albopictus</i>	500	1	15/60	125
Total					125

There will be no anticipated costs to respondents other than time.

The mean hourly wage rate for biological scientists (\$38.08) was used for the category of vector control professionals, entomologists, and public health biologists. Information on mean wage rates is available at [http://www.bls.gov/oes/current/oes\\_nat.htm](http://www.bls.gov/oes/current/oes_nat.htm).

#### B. Estimated Annualized Burden Costs

Type of Respondent	Form Name	Total Burden Hours	Hourly Wage Rate	Total Respondent Costs
Vector control professionals, Entomologists, and Public health biologists	Survey of county-level surveillance records of <i>Aedes aegypti</i> and <i>Aedes albopictus</i>	125	\$38.08	\$4,760.00
Total				\$4,760.00

### 13. Estimates of Other Total Cost Burden to Respondents or Record Keepers

There are no known capital and maintenance costs incurred by respondents or record keepers.

### 14. Cost to the Government



The cost to the federal government is estimated at \$12,732.80. This estimate represents the amount of time for the CDC staff to administer the survey, enter data, and conduct analysis. Hourly wage rates were used for step-1 FTEs for the Atlanta locality. These numbers are available at <https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/salary-tables/pdf/2015/ATL.pdf>.

<b>Grade</b>	<b>Hours</b>	<b>Hourly Wage</b>	<b>Total</b>
GS-14	80	\$50.00	\$4,000.00
GS-13	160	\$42.31	\$6,769.60
GS-9	80	\$24.54	\$1,963.20
<b>Total</b>			\$12,732.80

**15. Explanation for Program Changes or Adjustments**

This is a new information collection.

**16. Plans for Tabulation and Publication and Project Time Schedule**

The survey is expected to launch the last week of September and run through December 2016, although we expect the majority of submissions to arrive in October. Submissions will be tabulated weekly or bi-weekly and distribution maps will be updated for internal CDC distribution as information changes significantly. Data from this survey are expected to be integrated into a publication describing a model of vector distributions which we aim to have submitted by March, 2017.

**17. Reason(s) Display of OMB Expiration Date is Inappropriate**

The display of the OMB expiration date is appropriate.

**18. Exceptions to Certification for Paperwork Reduction Act Submissions**

There are no exceptions to the certification.

**Attachments**

- A. Public Health Service Act (42 USC 241)
- B. 60-day FRN
  - 1. Public Comment
- C. Survey of county-level surveillance records of *Aedes aegypti* and *Aedes albopictus* from 2000 to present
- D. IRB Non-research Determination
- E. Journal of Medical Entomology Paper