CASE STUDY:
Global Health on CAB Direct

Aedes mosquitoes – carriers of Zika virus

The **Global Health** database is a uniquely rich online resource of public health scientific literature. It gives researchers and students unparalleled access to the world's relevant public health research and practice – providing knowledge across borders and disciplines.

CABI's online database platform, **CAB Direct**, has been built specifically for researchers working in the applied life sciences to help them use Global Health to research public health and emerging diseases quickly and with precision.

KNOWLEDGE FOR LIFE

Aedes mosquitoes – carriers of Zika virus

Spreading in the tropics because of invasive mosquitoes, *Aedes aegypti* and *Aedes albopictus*, Zika is the latest in a wave of viral vector borne diseases. A treatment for Zika could be years away, but controlling the mosquito is an option.

These mosquitoes bite in daytime, are well suited to urban environments and are therefore difficult to control.

CABI's **Global Health** database contains over 2.7m records covering evidence-based practice, health promotion and the concept of 'one health'.

CABI's **Global Health Archive** offers over 800,000 records on public health from out-of-print journals dating back to 1910.

Together the two products provide a global picture of international public health research, both past and present, such as the emergence of the Zika virus.

CABI has been gathering information on vector borne diseases since 1912 and has unrivalled coverage – which can help researchers in the fight against Zika by identifying Aedes control and tracking methods.

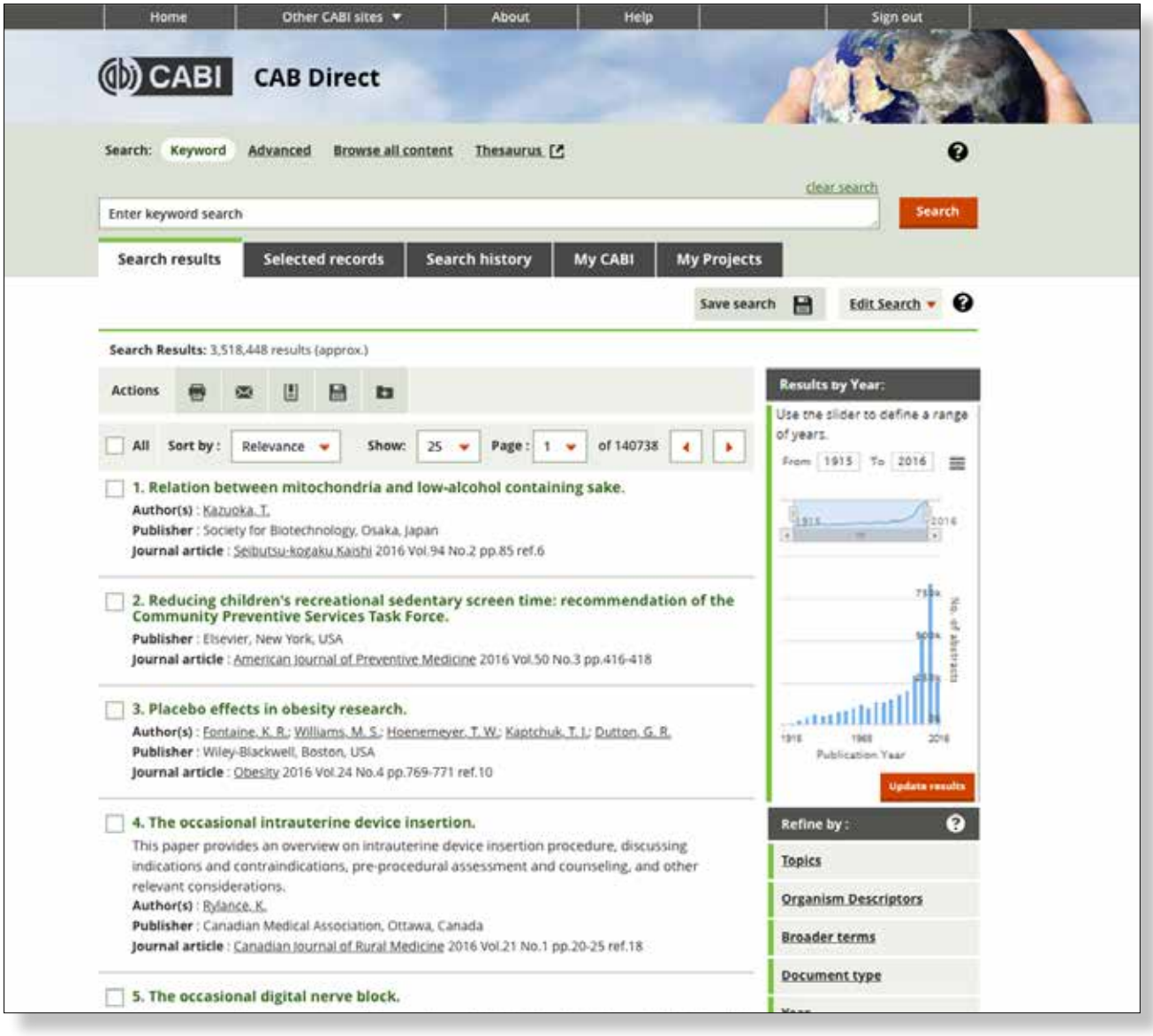
On **CAB Direct**, Global Health and Global Health Archive can help researchers understand the scale of the problem and enable them to identify Aedes control and tracking methods.

The screenshots in this case study show Global Health and Global Health Archive in use on the CAB Direct platform.

Zika is spreading due to invasive mosquitoes

Mosquitoes can breed in stagnant water

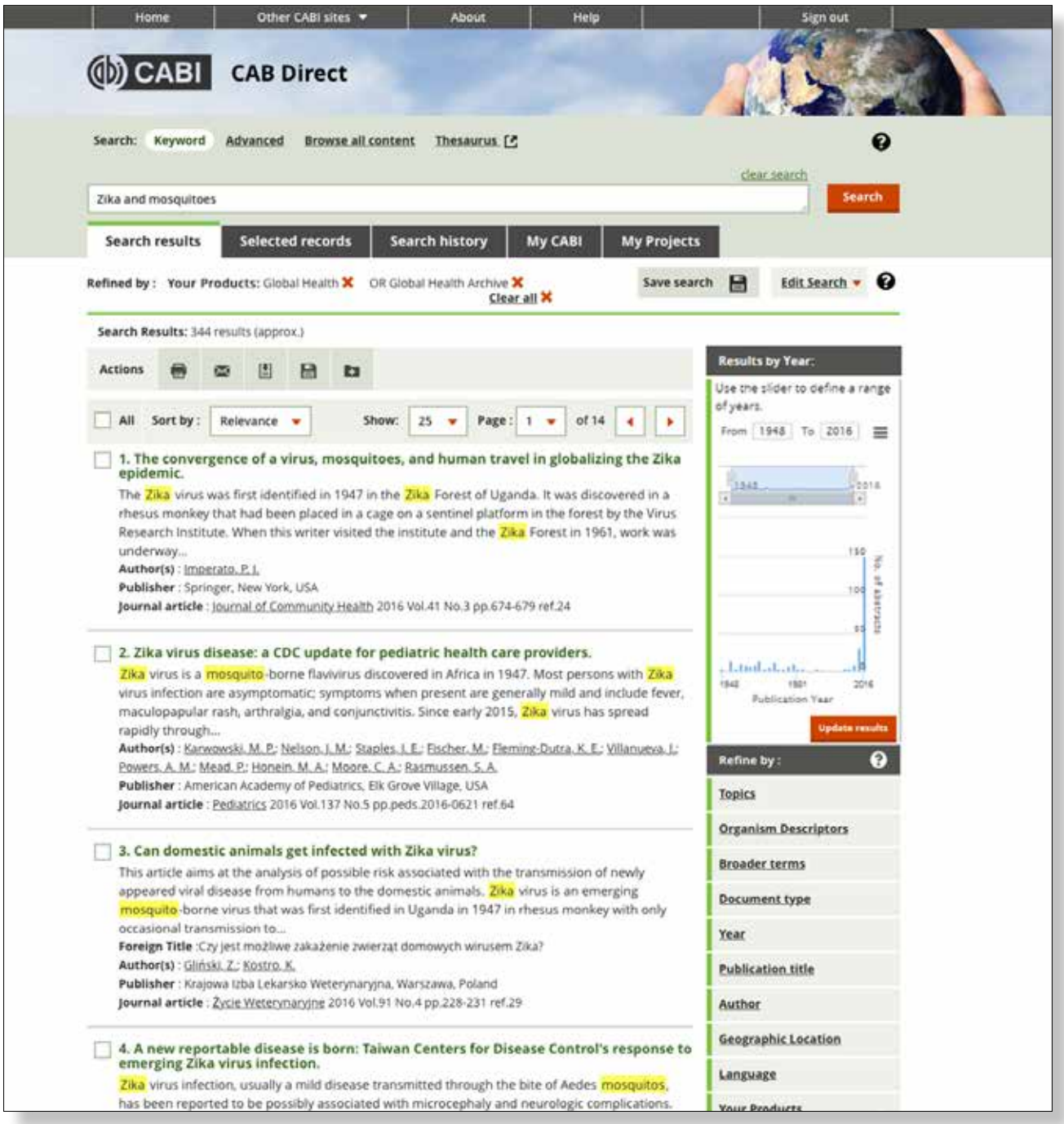
CAB Direct has been designed to provide quick and efficient access to the 3.5m abstracts comprising the Global Health databases.



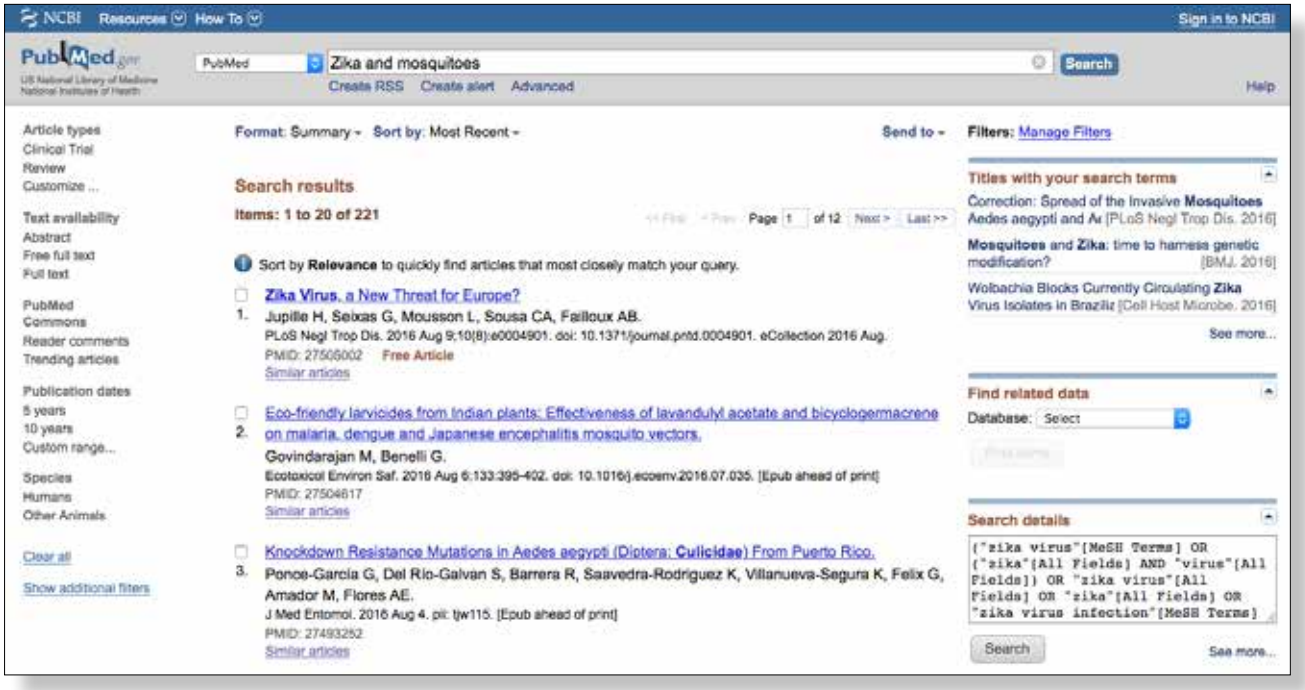
If you have access to more CABI products you can restrict your searches to Global Health and Global Health Archive by clicking on the 'Your Products' link under the Refine By list on the right of the CAB Direct page. This will make it easier to follow the case study.

Searching Global Health and Global Health Archive for 'Zika and mosquitoes' gives over 300 results, beginning in 1948 when mosquitoes from the Zika forest in Uganda were first suspected of carrying certain arbovirus diseases like Yellow fever, up to the latest research.

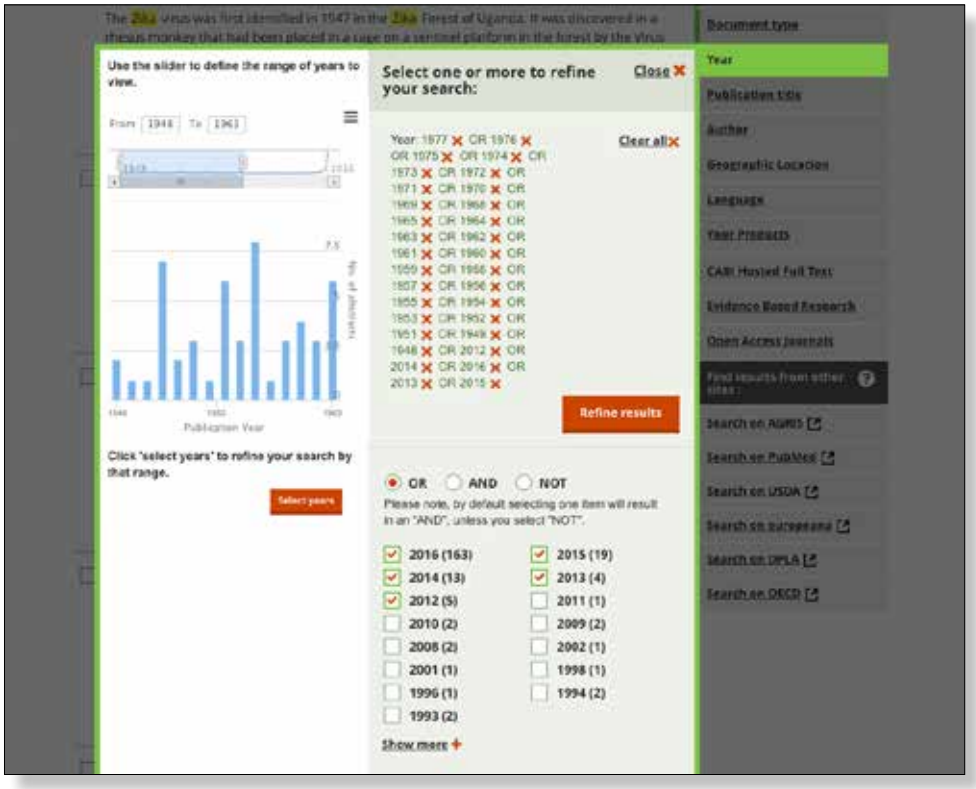
On CAB Direct, the results page has been designed to make searching for relevance fast and simple.



CAB Direct makes it possible to quickly compare results from your search to those of other sites, such as PubMed. Global Health found over 344 results. PubMed finds 221 results for 'Zika and mosquitoes'. (Numbers correct as at August 2016).

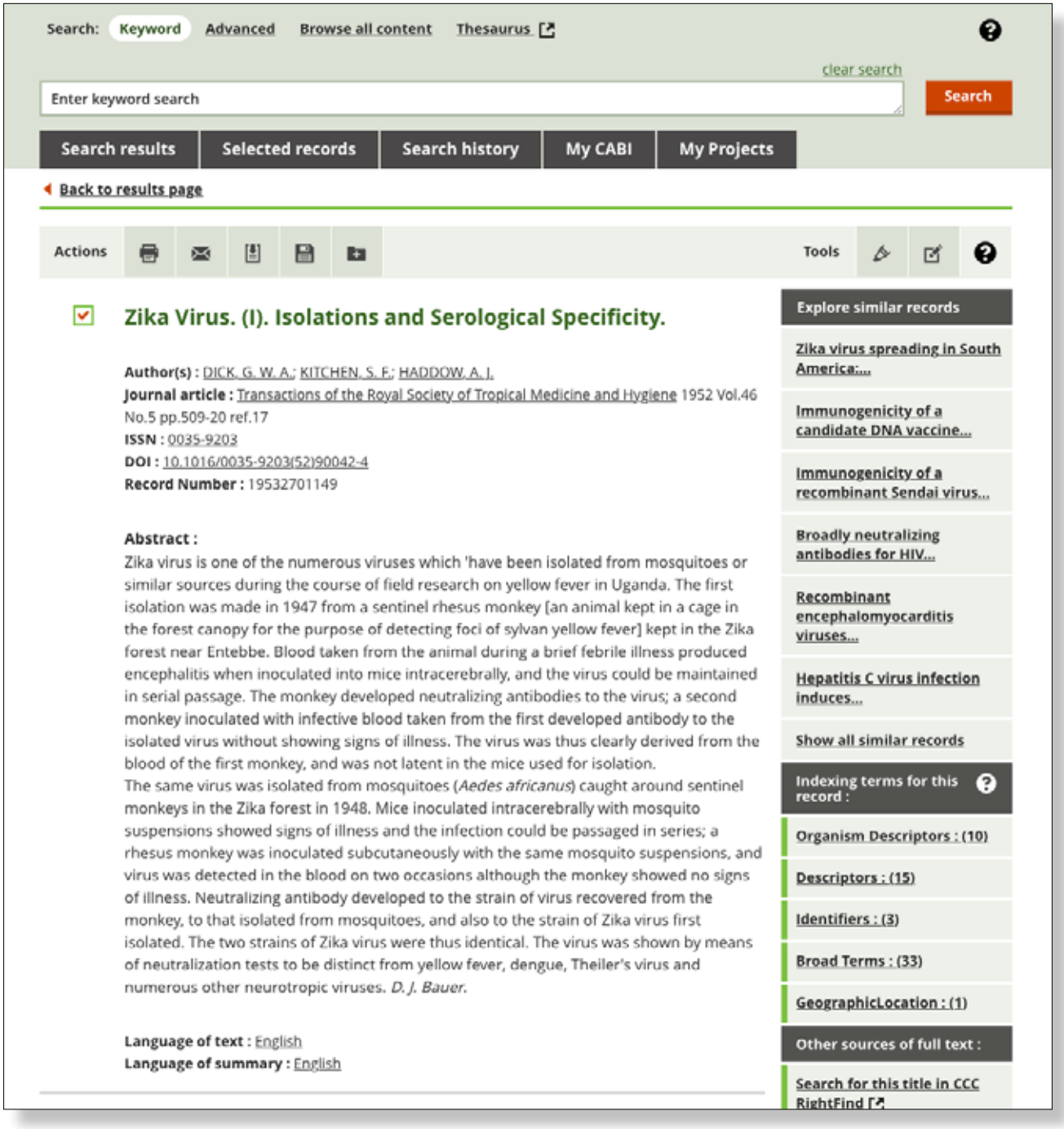


Going back to our search for 'Zika and mosquitoes' on CAB Direct, the new 'Results by Year' visualization provides an overview of peak periods of research output, and makes it possible to pick the years we want to view to compare abstracts of recent and historical papers.



e.g. we can use the year slider to select 1948 to 1963 and then use tick boxes to add in 2012 to 2016.

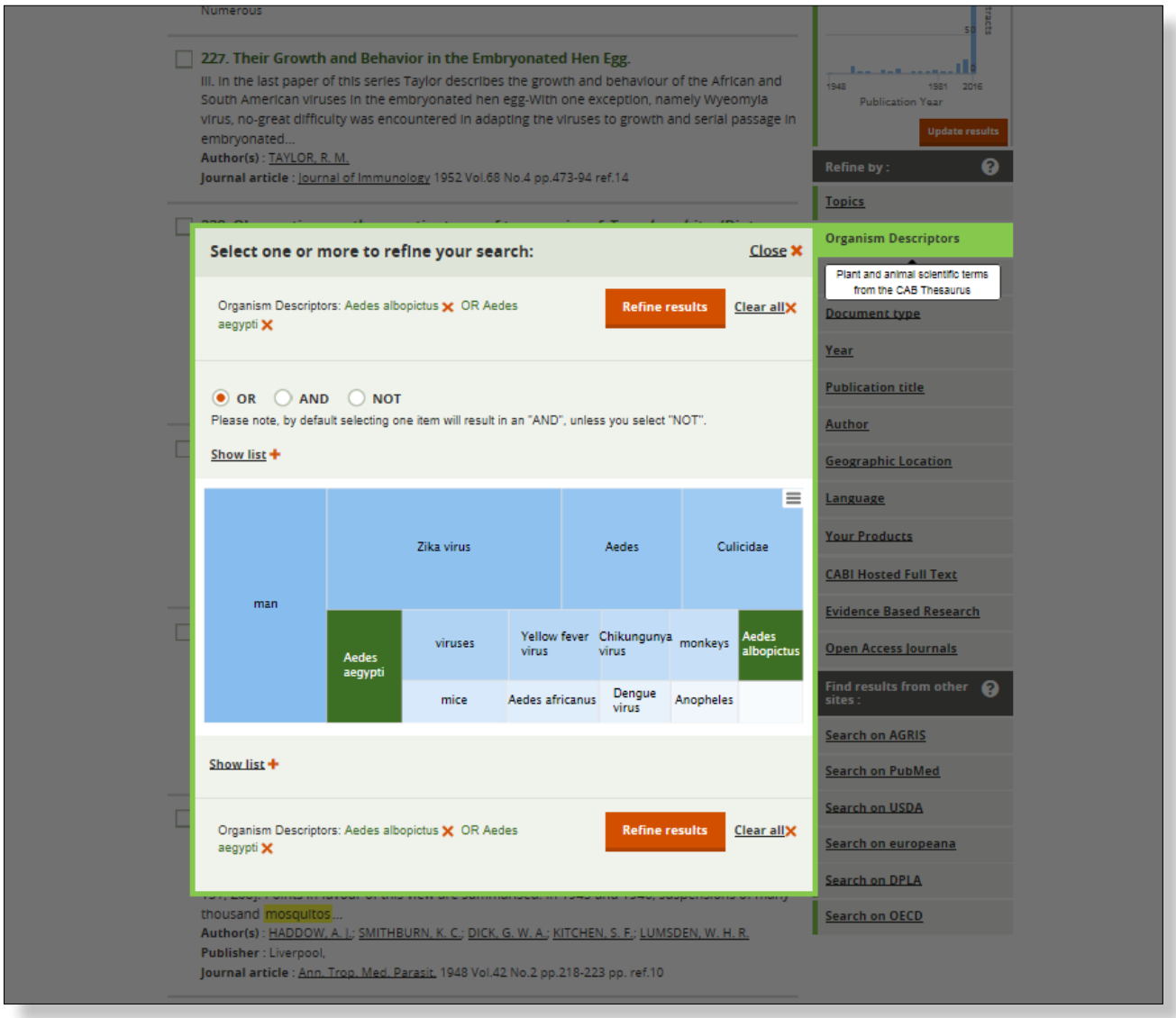
This makes it possible to find some of the first papers linking Zika to certain species of mosquito and where isolation of the virus shows that it infects the brain of monkeys, including the below article from 1952. (Record number 19532701149.)



In the above abstract we read about *Aedes africanus* and its link to Zika.

To make searching really powerful, Global Health and Global Health Archive are indexed using CAB Thesaurus, the largest and most comprehensive controlled vocabulary in the applied life sciences. The Thesaurus underpins CAB Direct's refining facets making it possible to narrow research quickly and precisely.

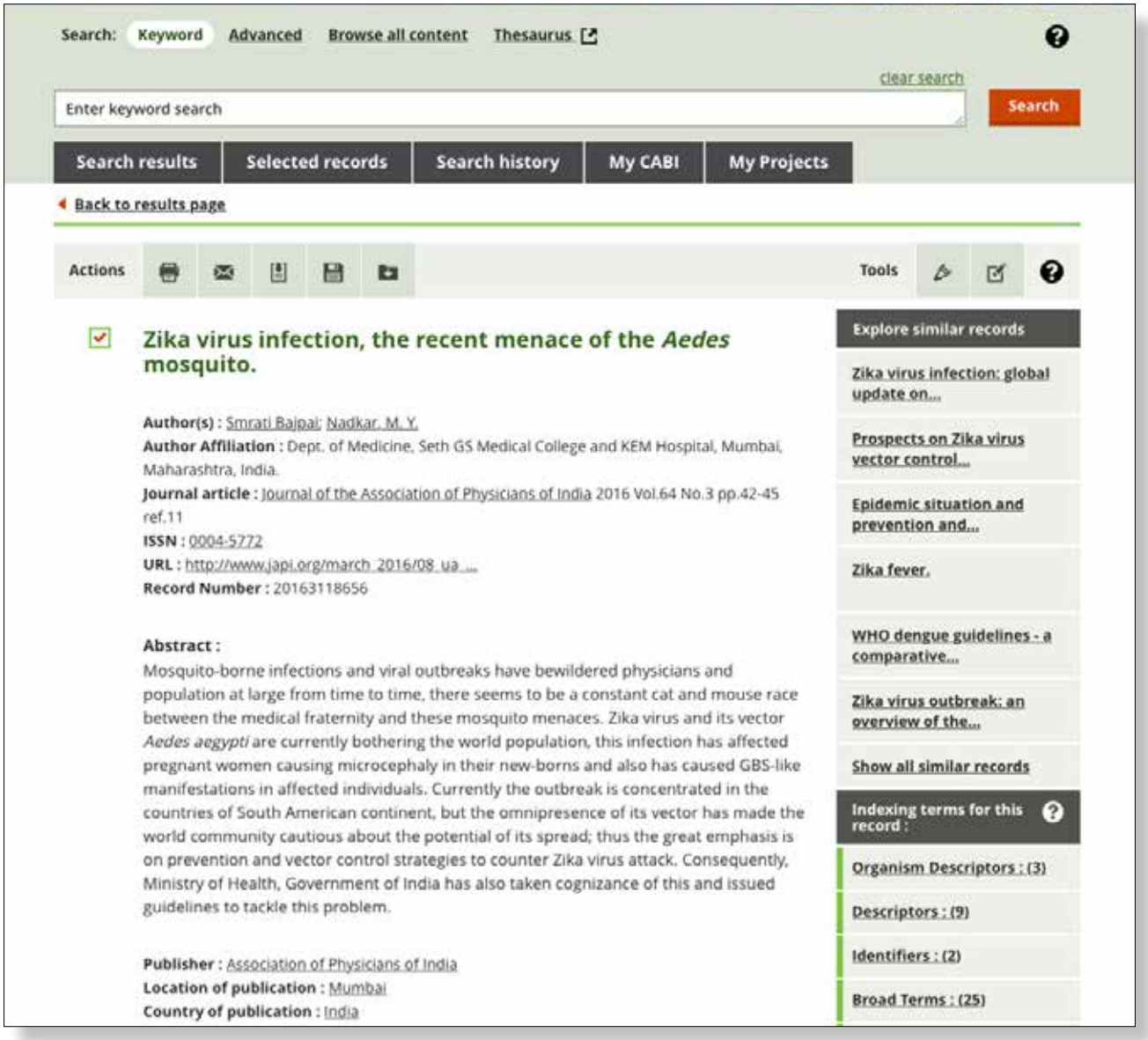
Going back to our search we can now analyse the results further using CAB Direct's 'Refine by' facets. Using the Organism Descriptors facet we can examine some species of mosquito that are most frequently associated with the Zika virus.



NB: CAB Direct uses a new visual interface so we can quickly see which terms are most commonly used in our search results for this period of the literature.

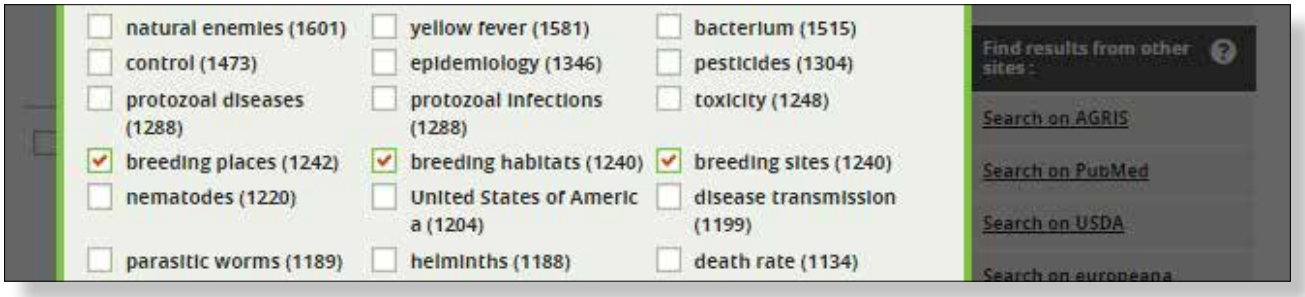
The visualization shows *Aedes aegypti* and *Aedes albopictus* as two further types of mosquito associated with Zika.

In one of the returned records we see that the emphasis for controlling Zika is on the mosquito vector. (Record number 20163118656.)



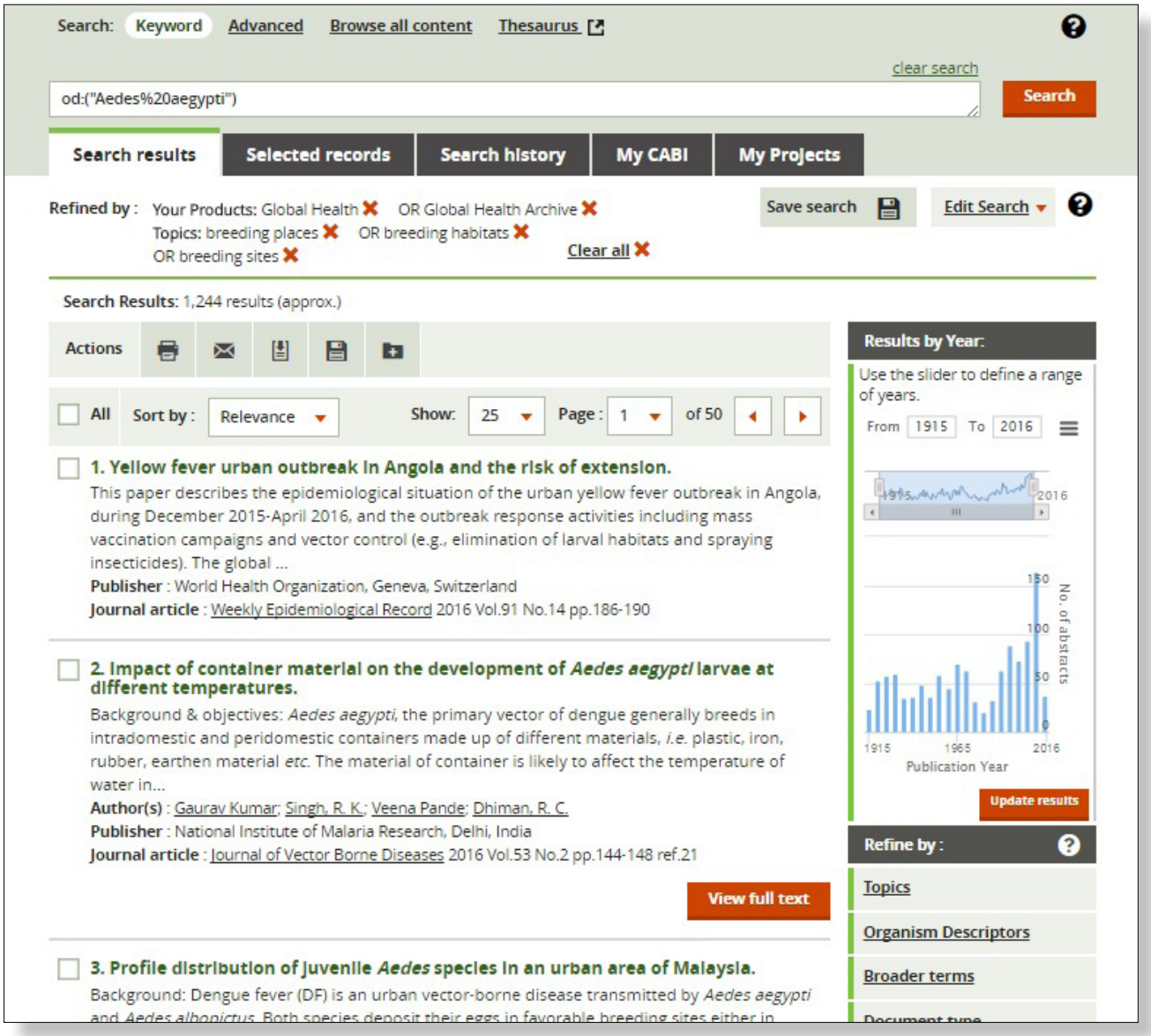
So we click on the organism descriptor *Aedes aegypti* and search on this alone to broaden our results (obtaining 16,950 results).

Building on this last search, we are interested in where mosquitoes breed, so can use the Topics facet to focus on breeding environments.



This reduces our results to 1,244.

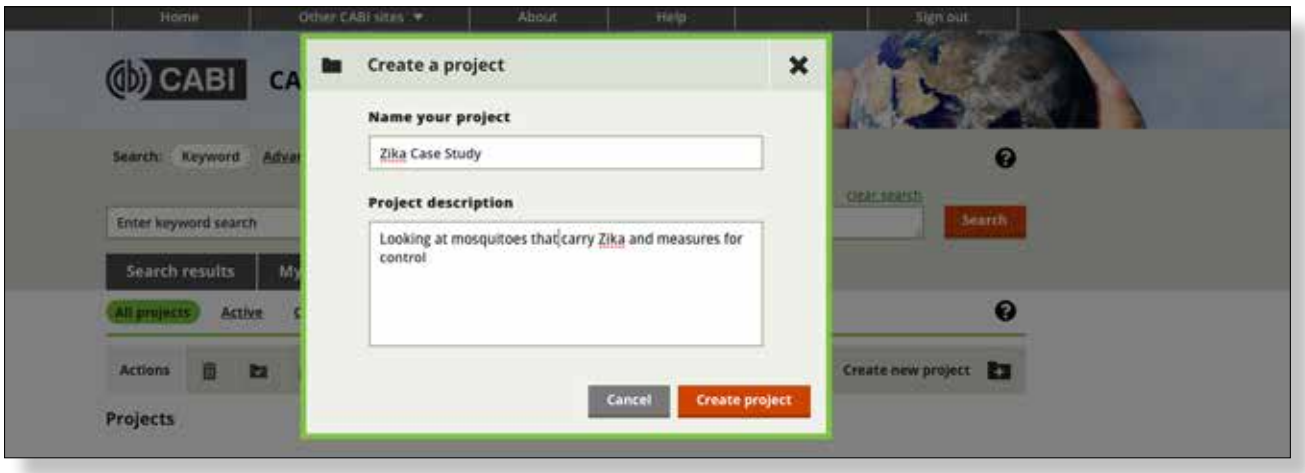
This gives us many papers about measures to control breeding (which could be applied to the Zika epidemic) including a paper on Yellow fever.

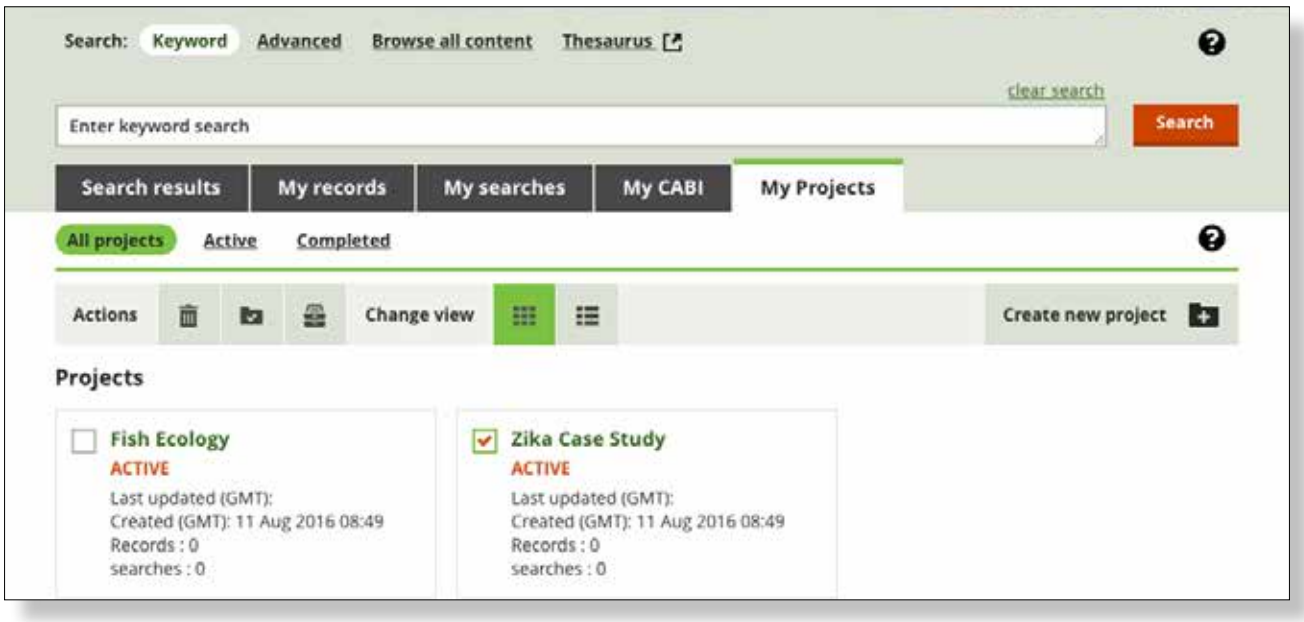


NB: our results include articles hosted by CABI, indicated by the 'View full text' icon.

Now that we have a search strategy developing, and a set of results to work with, we can use the 'My Projects' feature on CAB Direct to save and organise our searches and results.

It's quick and simple to sign-up for a 'My CABI' account and with this we can save searches and records, create and work on projects, highlight records and add annotations as well.

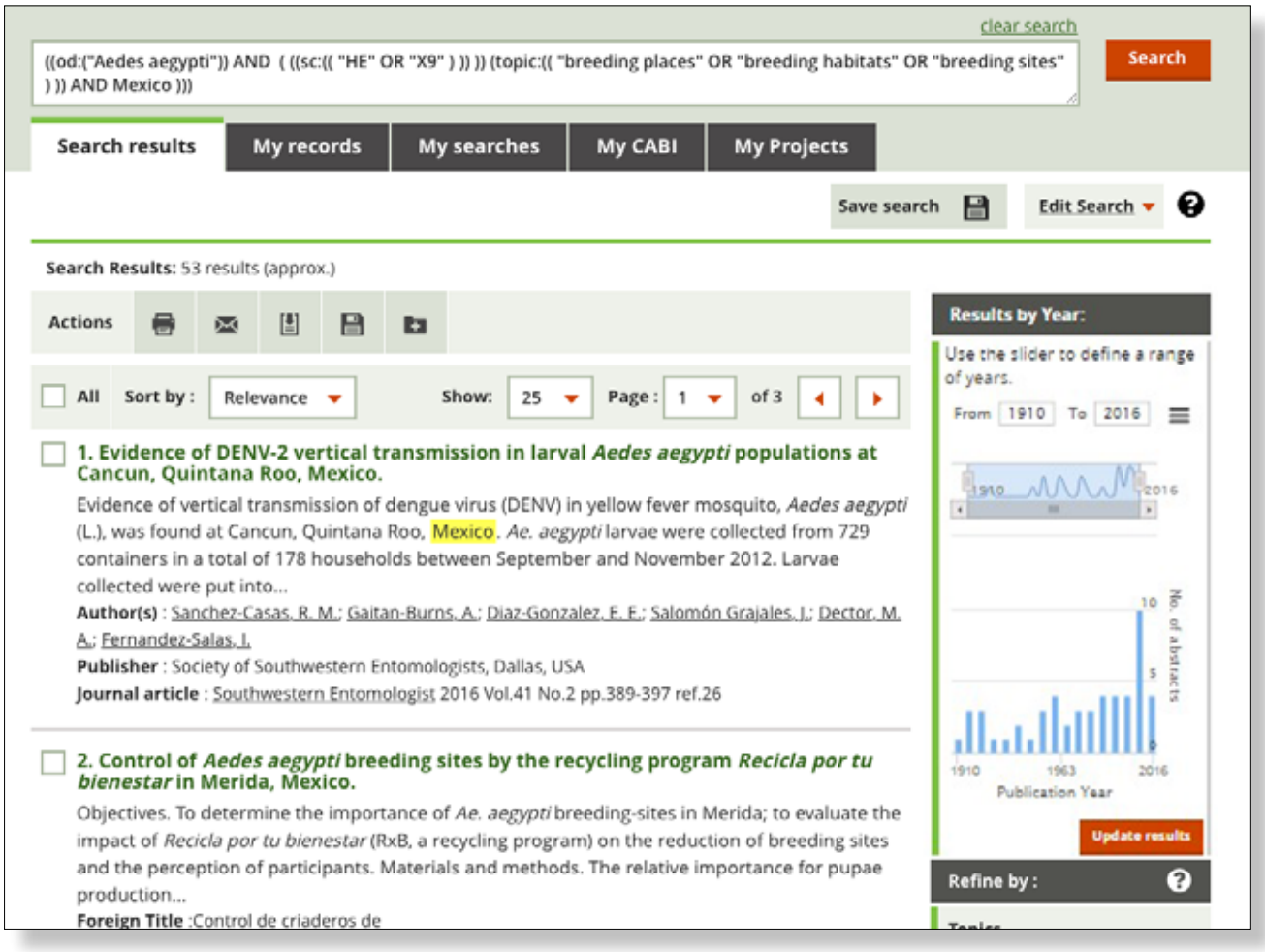




We can now go back to our search and change the search strategy if we wish. A good way to do this is to use CAB Direct's new 'Edit Search' feature. 'Edit Search' shows what search is doing behind the scenes and allows us to tailor the search strategy. We are now going to restrict the search to records about Mexico.

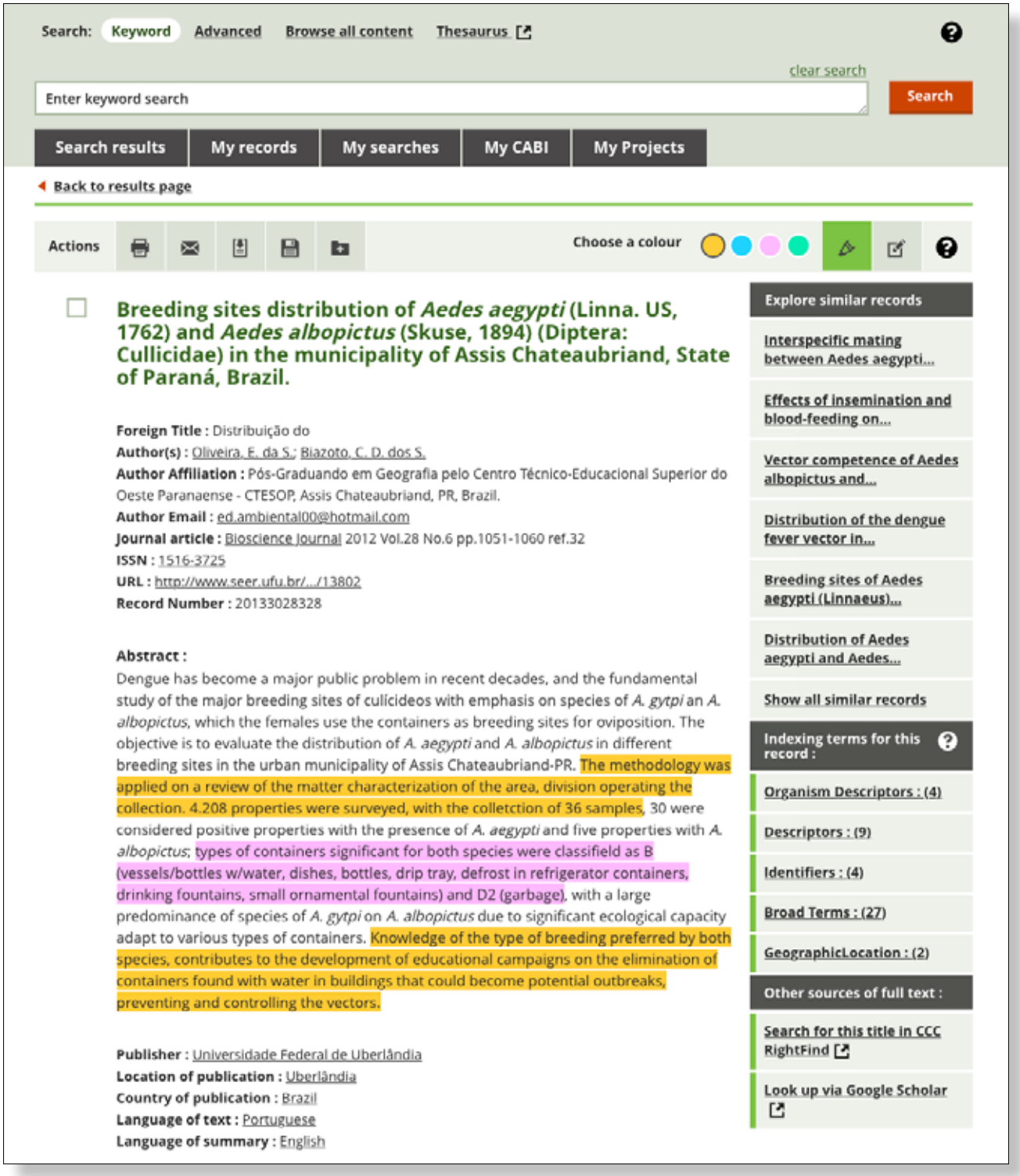
The new search gives us a more focused 53 results to work with.

Global Health indexes many publications such as 'Southwestern Entomologist'. In the new set of results we can see relevant abstracts not covered elsewhere, along with other titles for which CABI host the corresponding full text article, indicated by the 'View full text' icon.



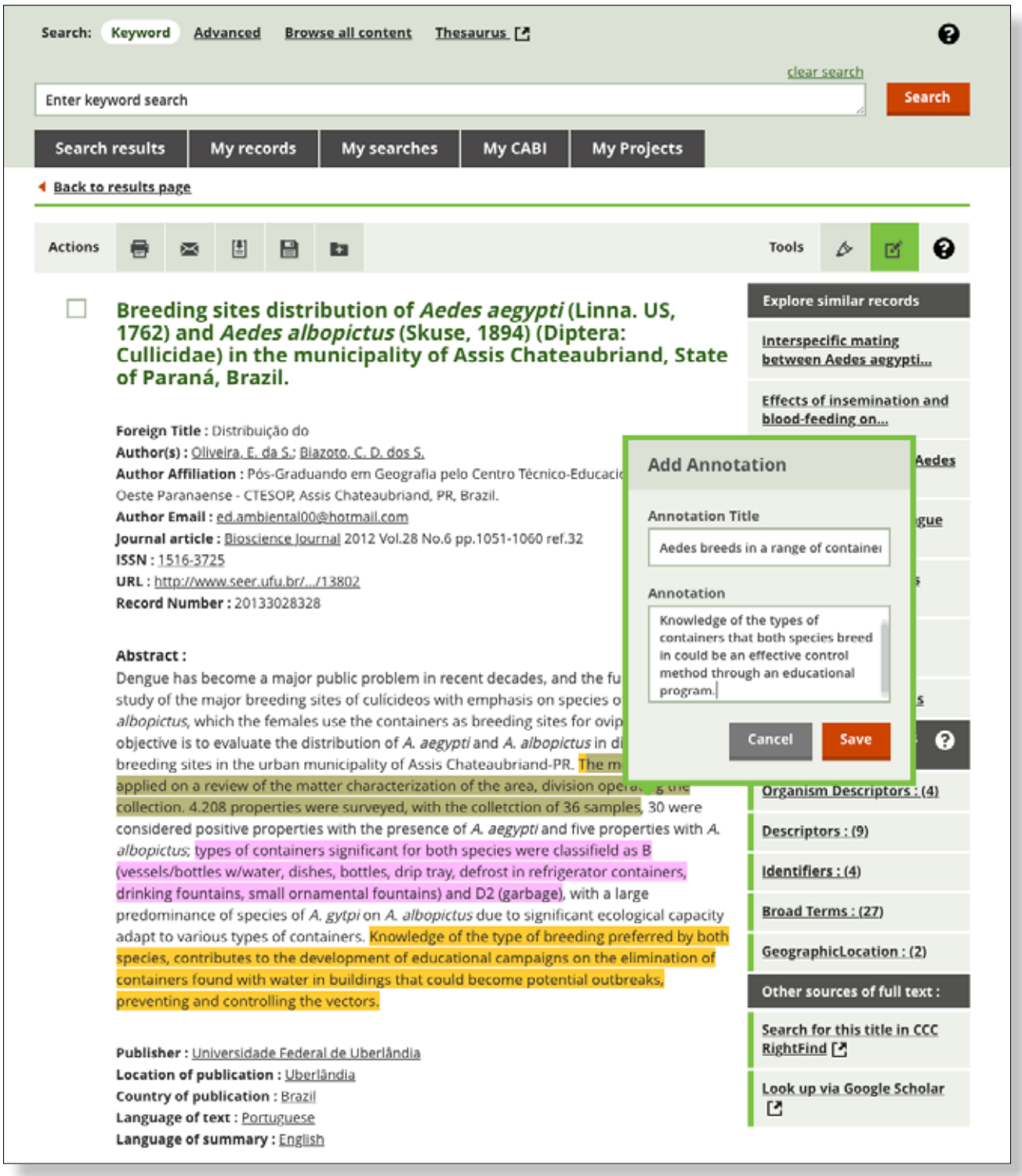
Global Health's rich subject coverage includes abstracts that cover research into how Aedes spreads and where it breeds, across many diverse geographic locations – not just in residential areas but also non-residential areas such as cemeteries.

In CAB Direct we can organise our data by using different colours to highlight different parts of the abstract, and save these annotations using the My CABI personalisation feature.

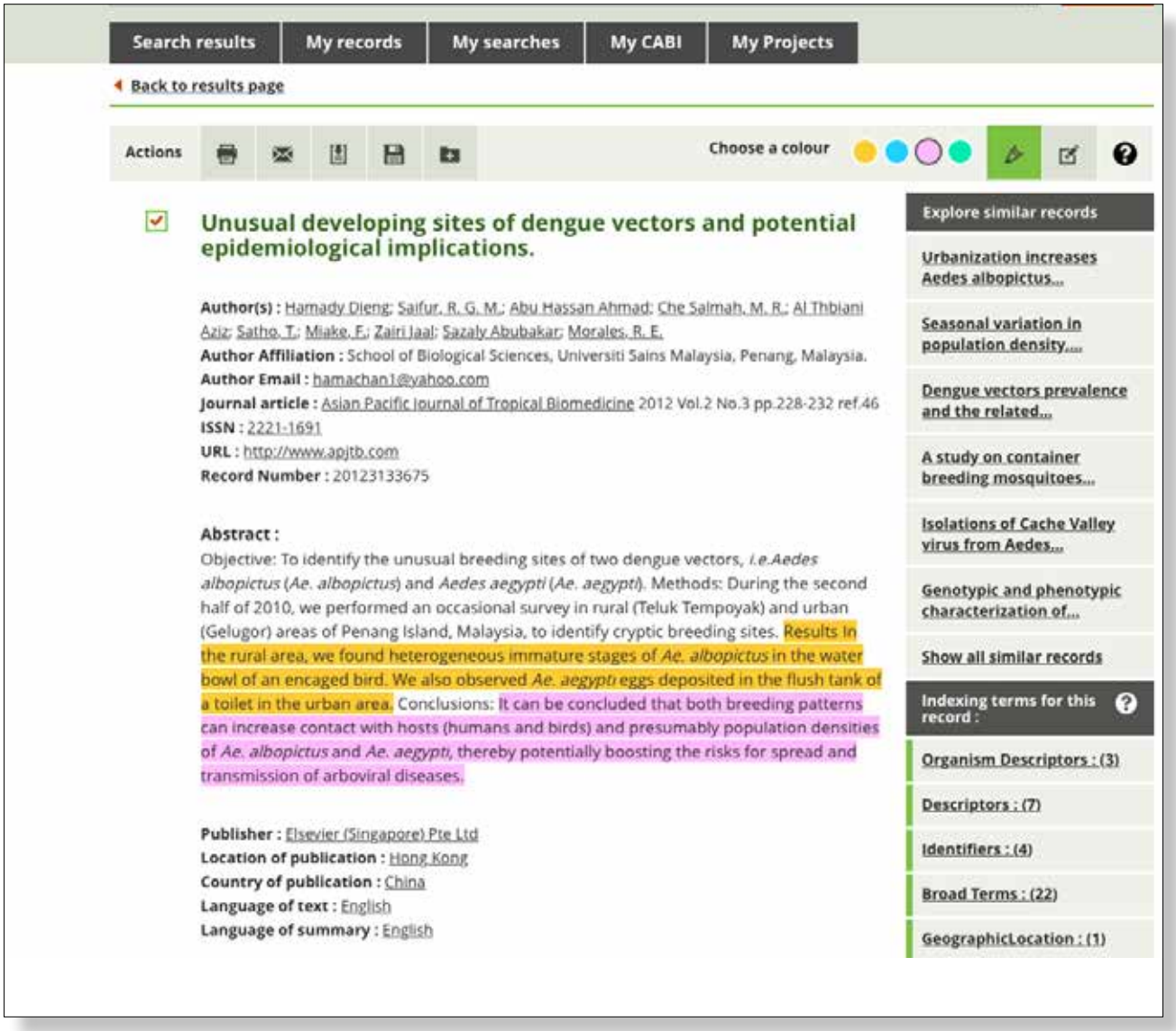


And research shows that Aedes breeds in a wide range of containers, from water bottles to ornamental fountains, and even fridge drip trays. The type of containers that both species breed in is important information for developing educational materials about control.

We can use CAB Direct's annotation features to add notes about key points of interest.



And research shows that larvae are found in as diverse locations as toilet cisterns and the water bowls of caged birds.



However, Global Health also covers research into the range of methods for controlling Aedes, for example the use of sprays containing small doses of metallic copper, or even copper coins, to inhibit mosquito growth without harming the environment.

Actions | Choose a colour

Metallic copper spray - a new control technique to combat invasive container-inhabiting mosquitoes.

Author(s) : Becker, N.; Thin Thin Oo; Schork, N.
Author Affiliation : German Mosquito Control Association (KABS), Institute for Dipterology, Georg-Peter-Süss-Str. 3, Speyer 67346, Germany.
Author Email : norbertfbecker@web.de
Journal article : Parasites and Vectors 2015 Vol.8 No.575 pp.(9 November 2015) ref.44
ISSN : 1756-3305
URL : http://www.parasitesandvectors.com/co...
Record Number : 20153401107

Abstract :
Background: The control of container-inhabiting mosquitoes is mainly based on environmental management with special emphasis on community participation e.g. source reduction by elimination or modification of water bodies. However, citizens are often not aware of the problems related to urban mosquito control or just ignore the advice provided during anti-mosquito control campaigns. In particular, cemeteries contain favourite breeding sites for container-inhabiting mosquitoes like *Ochlerotatus j. japonicus*, *Culex pipiens* s.l./*Cx. torrentium*, *Aedes aegypti* or *Aedes albopictus*. In our study, we investigated whether metallic copper e.g. in form of copper spray can be a suitable and cost-effective tool to combat mosquito breeding in vases or other similar small containers where no commonly used insecticides can be applied. Methods: The effect of metallic copper spray in comparison to 5 Euro cent coins or copper tubes at different dosages and water qualities applied in small water collections such as widely used plastic grave vases were evaluated by assessing the mortality rates of larvae of *Oc.j. japonicus*, *Cx. pipiens* s.l./*Cx. torrentium* and *Ae. aegypti*. Different water qualities were tested to assess the influence of pH on the solubility of the copper ions. The copper concentrations were quantified using ICP/MS (Inductively coupled plasma/Mass spectrometry) in relation to the exposure time and mortality rates of mosquito larvae. All statistical analyses were computed using JMP 10.0.2 (SAS Institute Inc., 2012, Cary, NC, USA). Results: Dosages of less than 500 ppb of copper in the water of small containers led to a 100% mortality rate after 2 weeks for all tested mosquito species by using one or more 5 Euro cent coins/vase. When the interior surface of plastic grave vases was covered by metallic copper spray, all of the tested larvae died after 7-10 days in the laboratory and under field conditions the reduction rate was 99.44% for *Oc.j. japonicus* and 99.6% for *Culex pipiens* s.l./*Cx. torrentium* larvae for a period of about 3 months. Conclusion: The use of metallic copper spray provides a sustainable control of container-inhabiting mosquitoes at low costs. The amount of dissolved copper in water (about 500 ppb) is far below the critical value for drinking water according to the WHO recommendations and is therefore not detrimental for the environment.

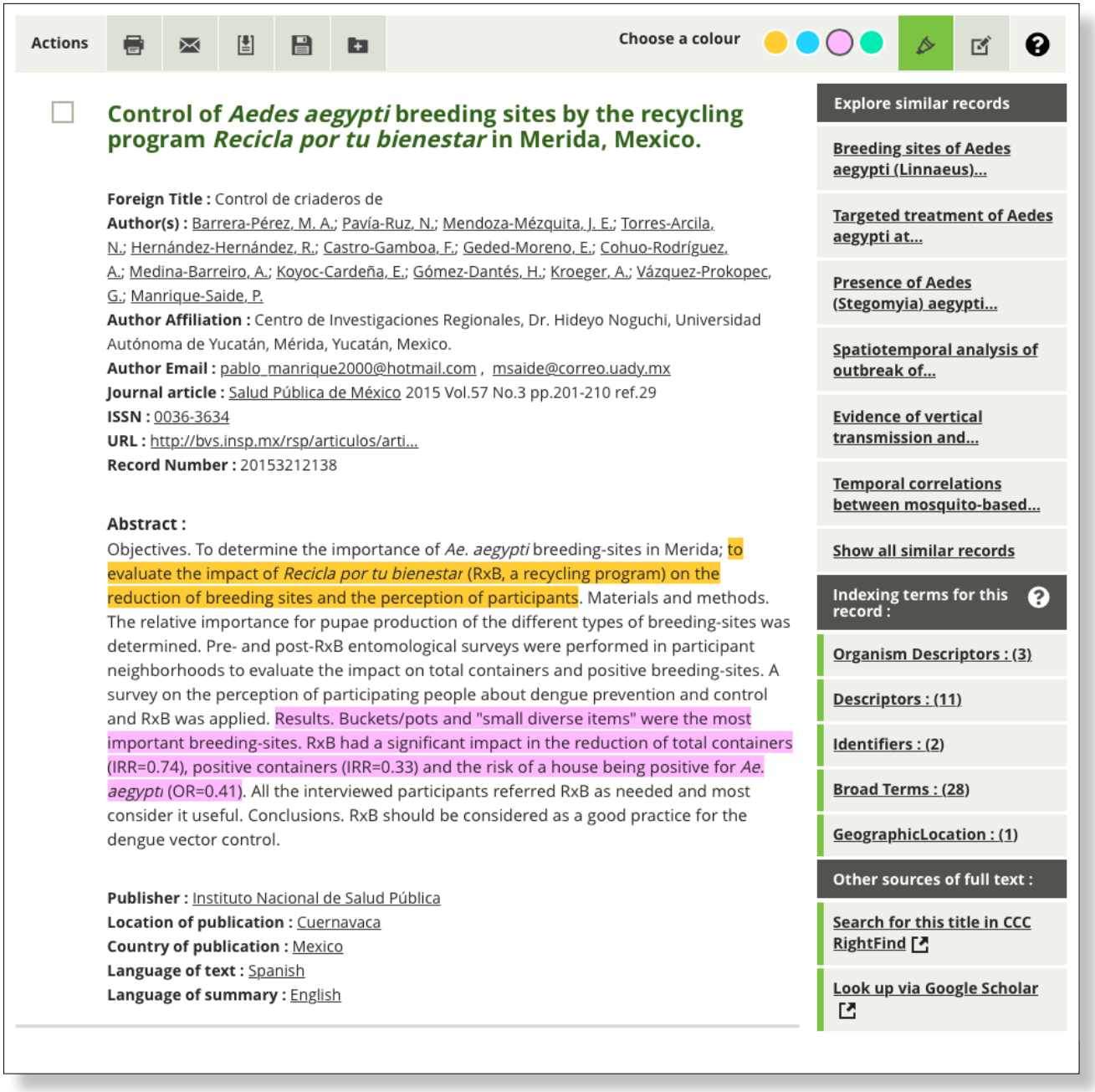
Publisher : BioMed Central Ltd
Location of publication : London
Country of publication : UK
Language of text : English
Language of summary : English

Explore similar records
- Exploring new thermal fog and ultra-low...
- Growth and survival of monarch butterflies...
- Analysis of G × E interaction by using the...
- Pyrethroid use - malaria control and...
- Do backyard mosquito sprays work?
- Evaluation of a spray of permethrin and...
- Show all similar records

Indexing terms for this record :
- Organism Descriptors : (4)
- Descriptors : (11)
- Identifiers : (7)
- Broad Terms : (10)

Other sources of full text :
- Search for this title in CCC RightFind
- Look up via Google Scholar

Alternative control approaches emerge from the research, such as plastic recycling programs that help to remove discarded containers that the mosquitoes can breed in.



Actions | Choose a colour

Control of *Aedes aegypti* breeding sites by the recycling program *Recicla por tu bienestar* in Merida, Mexico.

Foreign Title : Control de criaderos de
Author(s) : Barrera-Pérez, M. A.; Pavía-Ruz, N.; Mendoza-Mézquita, J. E.; Torres-Arcila, N.; Hernández-Hernández, R.; Castro-Gamboa, F.; Geded-Moreno, E.; Cohuo-Rodríguez, A.; Medina-Barreiro, A.; Koyoc-Cardeña, E.; Gómez-Dantés, H.; Kroeger, A.; Vázquez-Prokopec, G.; Manrique-Saide, P.
Author Affiliation : Centro de Investigaciones Regionales, Dr. Hideyo Noguchi, Universidad Autónoma de Yucatán, Mérida, Yucatán, Mexico.
Author Email : pablo_manrique2000@hotmail.com , msaide@correo.uady.mx
Journal article : Salud Pública de México 2015 Vol.57 No.3 pp.201-210 ref.29
ISSN : 0036-3634
URL : http://bvs.insp.mx/rsp/articulos/arti...
Record Number : 20153212138

Abstract :
Objectives. To determine the importance of *Ae. aegypti* breeding-sites in Merida; to evaluate the impact of *Recicla por tu bienestar* (RxB, a recycling program) on the reduction of breeding sites and the perception of participants. Materials and methods. The relative importance for pupae production of the different types of breeding-sites was determined. Pre- and post-RxB entomological surveys were performed in participant neighborhoods to evaluate the impact on total containers and positive breeding-sites. A survey on the perception of participating people about dengue prevention and control and RxB was applied. Results. Buckets/pots and "small diverse items" were the most important breeding-sites. RxB had a significant impact in the reduction of total containers (IRR=0.74), positive containers (IRR=0.33) and the risk of a house being positive for *Ae. aegypti* (OR=0.41). All the interviewed participants referred RxB as needed and most consider it useful. Conclusions. RxB should be considered as a good practice for the dengue vector control.

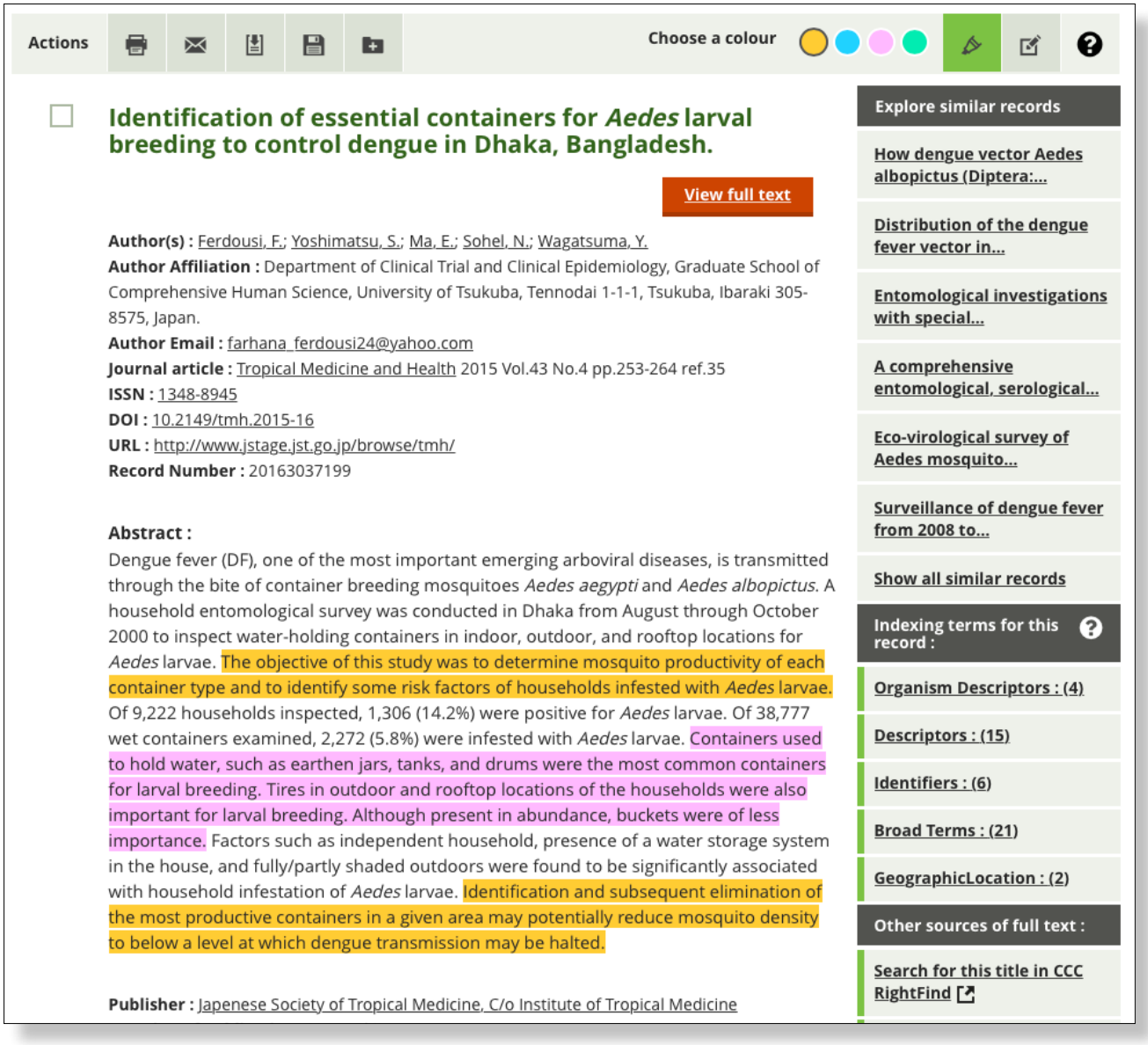
Publisher : Instituto Nacional de Salud Pública
Location of publication : Cuernavaca
Country of publication : Mexico
Language of text : Spanish
Language of summary : English

Explore similar records
Breeding sites of Aedes aegypti (Linnaeus)...
Targeted treatment of Aedes aegypti at...
Presence of Aedes (Stegomyia) aegypti...
Spatiotemporal analysis of outbreak of...
Evidence of vertical transmission and...
Temporal correlations between mosquito-based...
Show all similar records

Indexing terms for this record :
Organism Descriptors : (3)
Descriptors : (11)
Identifiers : (2)
Broad Terms : (28)
GeographicLocation : (1)

Other sources of full text :
Search for this title in CCC RightFind
Look up via Google Scholar

And from Dhaka, Bangladesh an interesting study regarding the elimination of certain types of water containers, which is not indexed in other databases and for which CABI hosts the full text article.



Actions | Choose a colour

Identification of essential containers for *Aedes* larval breeding to control dengue in Dhaka, Bangladesh.

View full text

Author(s) : Ferdousi, F.; Yoshimatsu, S.; Ma, E.; Sohel, N.; Wagatsuma, Y.
Author Affiliation : Department of Clinical Trial and Clinical Epidemiology, Graduate School of Comprehensive Human Science, University of Tsukuba, Tennodai 1-1-1, Tsukuba, Ibaraki 305-8575, Japan.
Author Email : farhana_ferdousi24@yahoo.com
Journal article : Tropical Medicine and Health 2015 Vol.43 No.4 pp.253-264 ref.35
ISSN : 1348-8945
DOI : 10.2149/tmh.2015-16
URL : http://www.jstage.jst.go.jp/browse/tmh/
Record Number : 20163037199

Abstract :
Dengue fever (DF), one of the most important emerging arboviral diseases, is transmitted through the bite of container breeding mosquitoes *Aedes aegypti* and *Aedes albopictus*. A household entomological survey was conducted in Dhaka from August through October 2000 to inspect water-holding containers in indoor, outdoor, and rooftop locations for *Aedes* larvae. The objective of this study was to determine mosquito productivity of each container type and to identify some risk factors of households infested with *Aedes* larvae. Of 9,222 households inspected, 1,306 (14.2%) were positive for *Aedes* larvae. Of 38,777 wet containers examined, 2,272 (5.8%) were infested with *Aedes* larvae. Containers used to hold water, such as earthen jars, tanks, and drums were the most common containers for larval breeding. Tires in outdoor and rooftop locations of the households were also important for larval breeding. Although present in abundance, buckets were of less importance. Factors such as independent household, presence of a water storage system in the house, and fully/partly shaded outdoors were found to be significantly associated with household infestation of *Aedes* larvae. Identification and subsequent elimination of the most productive containers in a given area may potentially reduce mosquito density to below a level at which dengue transmission may be halted.

Publisher : Japenese Society of Tropical Medicine, C/o Institute of Tropical Medicine

Explore similar records
- How dengue vector Aedes albopictus (Diptera:...
- Distribution of the dengue fever vector in...
- Entomological investigations with special...
- A comprehensive entomological, serological...
- Eco-virological survey of Aedes mosquito...
- Surveillance of dengue fever from 2008 to...
- Show all similar records

Indexing terms for this record :
- Organism Descriptors : (4)
- Descriptors : (15)
- Identifiers : (6)
- Broad Terms : (21)
- GeographicLocation : (2)

Other sources of full text :
- Search for this title in CCC RightFind

Tropical Medicine and Health Vol. 43 No.4, 2015, 253–264
doi: 10.2149/tmh.2015-16

Original Papers

Identification of Essential Containers for *Aedes* Larval Breeding to Control Dengue in Dhaka, Bangladesh

Farhana Ferdousi[1]*, Shoji Yoshimatsu[2], Enbo Ma[3], Nazmul Sohel[4] and Yukiko Wagatsuma[3]
Received 14 April, 2015 Accepted 30 August, 2015 Published online 11 September, 2015

Abstract: Dengue fever (DF), one of the most important emerging arboviral diseases, is transmitted through the bite of container breeding mosquitoes *Aedes aegypti* and *Aedes albopictus*. A household entomological survey was conducted in Dhaka from August through October 2000 to inspect water-holding containers in indoor, outdoor, and rooftop locations for *Aedes* larvae. The objective of this study was to determine mosquito productivity of each container type and to identify some risk factors of households infested with *Aedes* larvae. Of 9,222 households

Global Health also covers strategies that households can employ to reduce mosquitoes in the home, such as installing screens to doors and concentrating on the most likely containers that Aedes breeds in to maximise the effectiveness of the control strategy.

Actions | Choose a colour

Long-lasting insecticide-treated house screens and targeted treatment of productive breeding-sites for dengue vector control in Acapulco, Mexico.

Author(s) : Che-Mendoza, A.; Guillermo-May, G.; Herrera-Bojórquez, J.; Barrera-Pérez, M.; Dzul-Manzanilla, F.; Gutierrez-Castro, C.; Arredondo-Jiménez, J. I.; Sánchez-Tejeda, G.; Vazquez-Prokopec, G.; Ranson, H.; Lenhart, A.; Sommerfeld, J.; McCall, P. J.; Kroeger, A.; Manrique-Saide, P.
Author Affiliation : Servicios de Salud de Yucatán, Gobierno del Estado de Yucatán, C.P. 97000, Mérida, Mexico.
Author Email : pablo_manrique2000@hotmail.com
Editors : Sommerfeld, J.; Kroeger, A.
Journal article : Transactions of the Royal Society of Tropical Medicine and Hygiene 2015 Vol.109 No.2 pp.106-115 ref.30
ISSN : 0035-9203
DOI : 10.1093/trstmh/tru189
URL : http://trstmh.oxfordjournals.org/cont...
Record Number : 20153094177

Abstract :
Background: Long-lasting insecticidal net screens (LLIS) fitted to domestic windows and doors in combination with targeted treatment (TT) of the most productive *Aedes aegypti* breeding sites were evaluated for their impact on dengue vector indices in a cluster-randomised trial in Mexico between 2011 and 2013. Methods: Sequentially over 2 years, LLIS and TT were deployed in 10 treatment clusters (100 houses/cluster) and followed up over 24 months. Cross-sectional surveys quantified infestations of adult mosquitoes, immature stages at baseline (pre-intervention) and in four post-intervention samples at 6-monthly intervals. Identical surveys were carried out in 10 control clusters that received no treatment. Results: LLIS clusters had significantly lower infestations compared to control clusters at 5 and 12 months after installation, as measured by adult (male and female) and pupal-based vector indices. After addition of TT to the intervention houses in intervention clusters, indices remained significantly lower in the treated clusters until 18 (immature and adult stage indices) and 24 months (adult indices only) post-intervention. Conclusions: These safe, simple affordable vector control tools were well-accepted by study participants and are potentially suitable in many regions at risk from dengue worldwide.

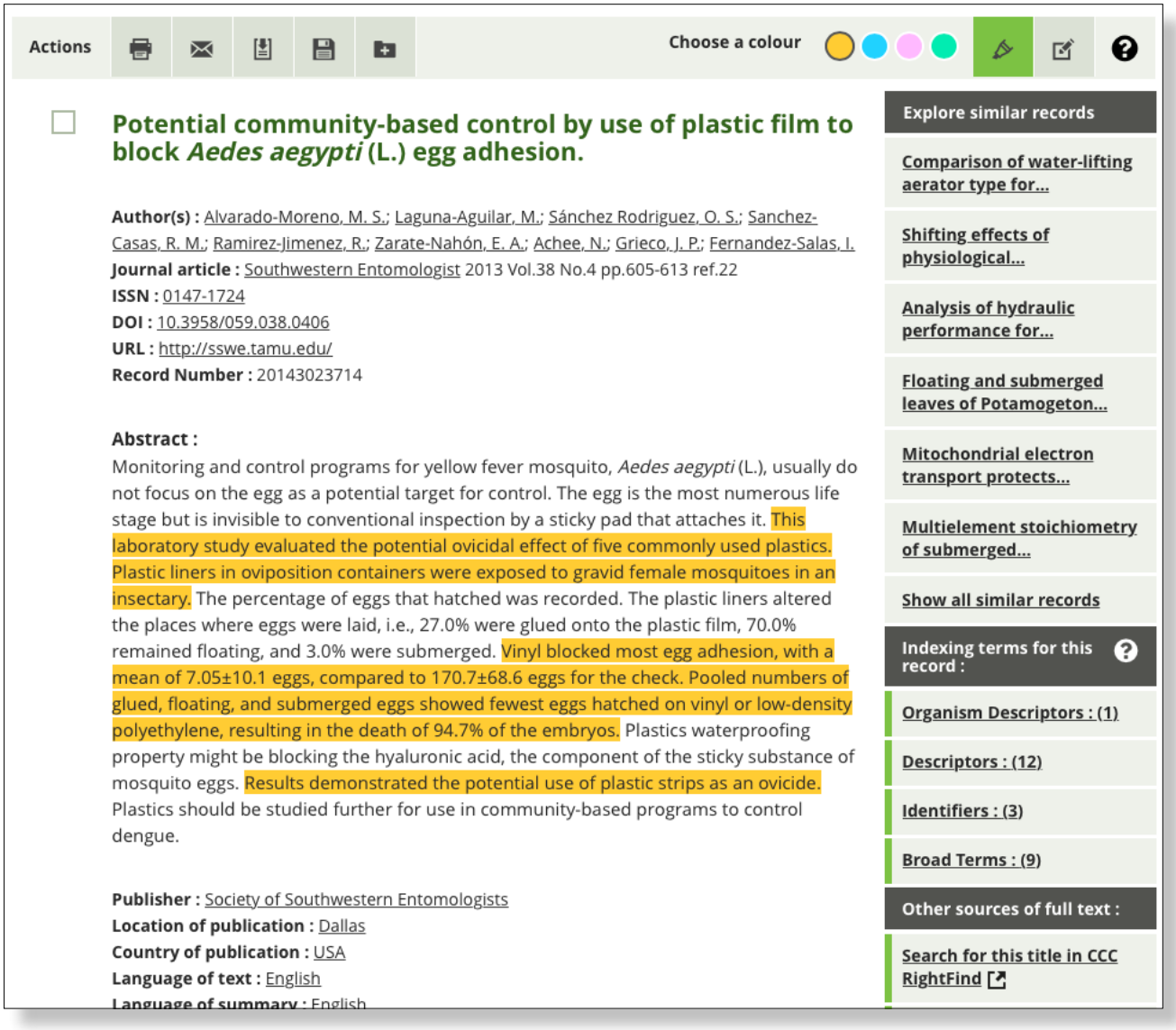
Publisher : Oxford University Press
Location of publication : Oxford
Country of publication : UK
Language of text : English
Language of summary : English

Explore similar records
- Characteristics of patients who accept and...
- Use and acceptance of long lasting...
- Willingness to accept HIV testing and to pay...
- HIV test offers and acceptance: New York...
- Surrogate outcomes: experiences at the...
- Making voluntary medical male circumcision a...
- Show all similar records

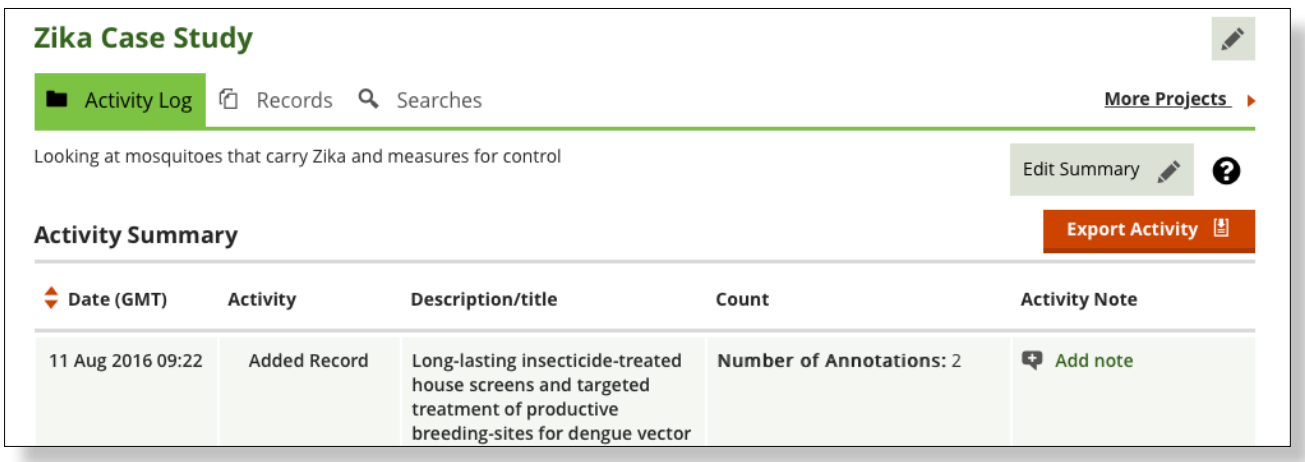
Indexing terms for this record :
- Organism Descriptors : (2)
- Descriptors : (10)
- Identifiers : (2)
- Broad Terms : (22)
- GeographicLocation : (1)

Other sources of full text :
- Search for this title in CCC RightFind
- Look up via Google Scholar

As well as strategies such as fitting plastic film in containers to reduce egg adhesion.

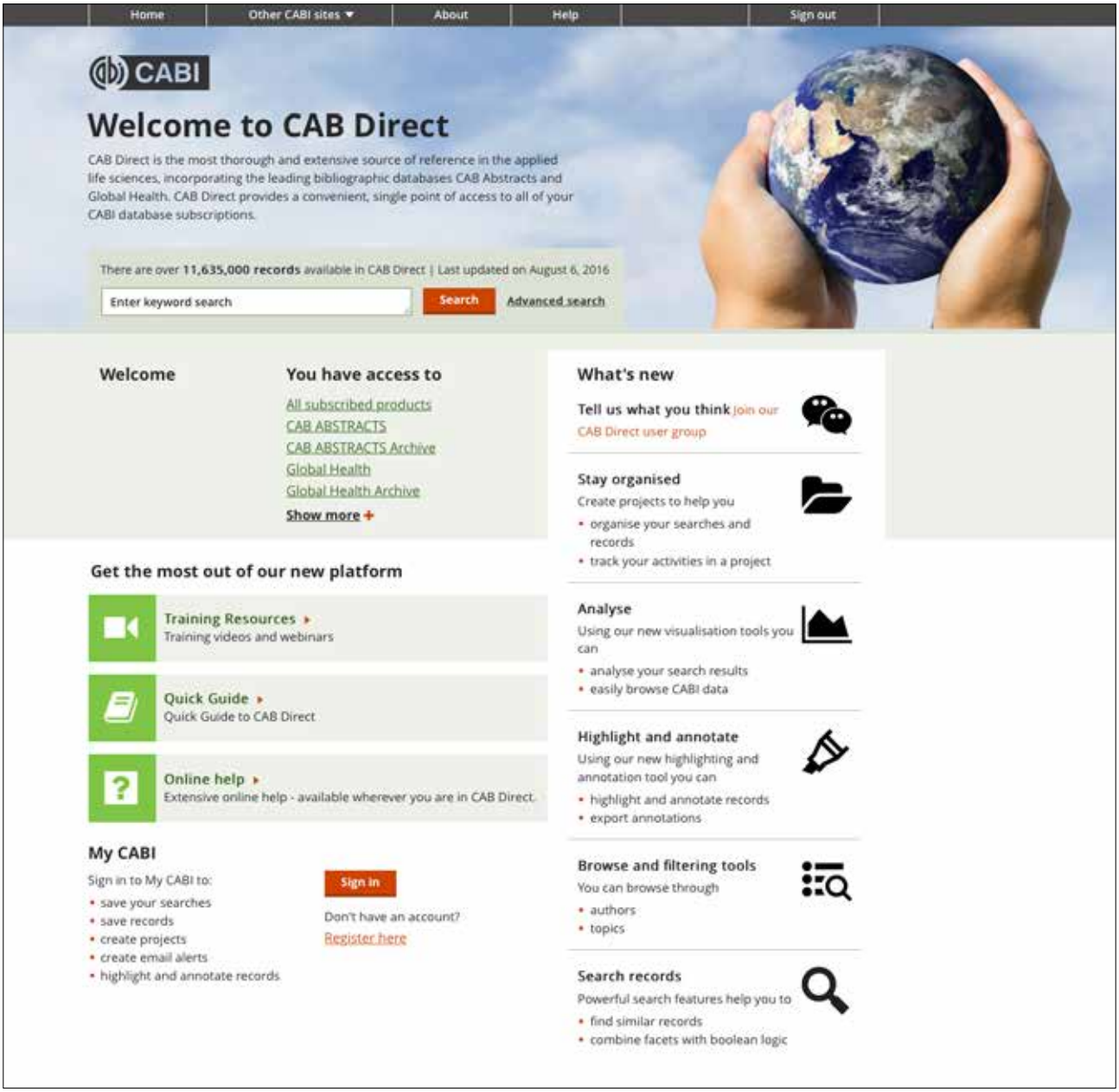


My Projects on CAB Direct not only gives you an efficient way to group and manage your work, it also automatically generates an exportable log of your activities on the project. This gives you a quick and simple way to track and report on what you have been working on.



available on your chosen platform

Global Health on **CAB Direct** combines sophisticated search and refining capabilities with useful features like **My Projects**, highlighting and annotating, in a clear and easy to use interface.



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PB-CD4-CSZI-08-16