



DATASHIFT

FORESTWATCHERS **FOREST-MONITORING** **MICROTASKING** **PLATFORM**

CASE STUDY

INITIATIVE NAME:
FORESTWATCHERS

ONLINE PRESENCE:
[HTTP://FORESTWATCHERS.NET](http://forestwatchers.net)

GEOGRAPHICAL SCOPE:
INTERNATIONAL

ForestWatchers is a micro-tasking platform that aims to complement existing strategies of forest conservation around the globe. The project is the first forest-monitoring programme to directly involve volunteer citizen scientists in monitoring tropical forests. ForestWatchers seeks to provide volunteer deforestation assessment for countries, regions or communities that do not have the necessary infrastructure or manpower to do so otherwise.

Tropical forests worldwide provide a habitat for most of the world's species – plant and animal alike. They sustain numerous indigenous cultures and house most of the world's known terrestrial plant and animal types. But these ecosystems are increasingly under threat. During the past few decades, millions of hectares of these forests annually have been lost. Despite the existence of new and more advanced remote sensing technologies, information about the status of the world's forest is limited.

The tremendous task of protecting and conserving these forests for future generations is outside the reach of traditional conservation strategies alone. Despite public awareness of the plight of tropical forests, it is difficult for concerned citizens to help preserve them. According to the people behind ForestWatchers, this calls for collective action to complement existing strategies.

ForestWatchers will be able to support national governments in determining the effectiveness of their conservation actions, a widely accepted pre-requisite for countries to participate in international agreements and incentive mechanisms related to forest carbon stocks preservation. At the local level, the project's potential beneficiaries include national forest management agencies, protected area managers, scientists and other stakeholders with interests in forest and biodiversity protection.¹

ForestWatchers “proposes a new paradigm in conservationism based on the convergence of volunteer computing with free or donated catalogues of high resolution Earth imagery”.² It involves volunteer citizen scientists from around the globe, who help monitor levels of deforestation. By reviewing satellite images of forested regions, anyone - local residents, volunteers, non-governmental organisations governments - anywhere in the world can help in the assessment of these regions.

These volunteers help classify the image into forest or non-forest using “a suitable automated classification algorithm.” As a result, “The accuracy of the resulting map can be further improved by volunteer observation on the web, or even by additional information provided by volunteers in the field.”³ Errors and even fraud are naturally handled by the inherent redundancy of the system, which is why it's crucial to attract and retain a large number of volunteers. According to the numbers provided by ForestWatchers, 100,000 volunteers watch over an area of 100,000 hectares each, roughly 40% to 50% of the estimated area of world's tropical forests.⁴

Publicly launched in September 2012 to considerable media attention, ForestWatchers was created thanks to an initial partnership between Brazil's National Institute for Space Research (INPE),⁵ the Federal University of São Paulo, the Citizen Cyberscience Centre (CCC)⁶ and the Open Society Foundations.⁷

1 Eduardo Fávero Pacheco da Luz, Felipe R. S. Correa, François Grey Daniel L. González, and Fernando M. Ramos. “The ForestWatchers: A Citizen Cyberscience Project for Deforestation Monitoring in the Tropics.” *Human Computation* 1, no. 2 (2014).
<http://hcjournal.org/ojs/index.php?journal=jhc&page=article&op=view&path%5B%5D=17>

2 <http://forestwatchers.net/mission.html>

3 Ibid.

4 Ibid.

5 INPE is a leader in deforestation monitoring and is responsible for the Real Time Deforestation Detection System (DETER) programme in the Amazon basin.

6 <http://citizencyberlab.eu/partners/citizen-cyberscience-center/>

7 Daniel Lombraña, “ForestWatchers.net A Citizen Project for Forest Monitoring”, Open Knowledge

Today, the platform is coordinated by the original partners plus the UN Institute for Training and Research Operational Satellite Applications Programme (UNITAR/UNOSAT).

The multi-tasking platform is powered by PyBossa.⁸ PyBossa is a free, open-source, crowd-sourcing and micro-tasking platform. It enables people to “create and run projects that utilize online assistance in performing tasks that require human cognition such as image classification, transcription, geocoding and more”.

BECOME A FORESTWATCHERS VOLUNTEER

image 1

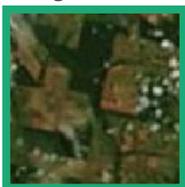
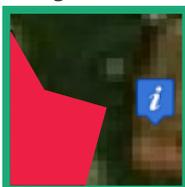


image 2



image 3



ForestWatchers tries to replicate the steps experts take when they assess deforestation for a given area of the forest. First, the experts compare several satellite images from the same area using pictures from different days. This is because some days some parts of the selected area will be fully or partially covered by clouds, making it impossible to analyse the deforestation. The experts “cut and paste” the good areas, creating a “collage”, or composite image, that will be almost “cloud-free”.⁹ This final image will be used in the next steps to study and analyse the deforestation of the area. ForestWatchers gives volunteers the opportunity to become one of these experts, choosing from different days the best parts of the image for creating the final one.

Volunteers help ForestWatchers find deforested areas around the globe. Citizen scientists can contribute to the project in two ways: by (1) cleaning satellite images or (2) marking deforested areas.

After creating a user profile, volunteers are shown a quick tutorial explaining how to use the tool.¹⁰ Then they begin to assess the deforested areas. First, the user is given one tile that the broader community has previously selected as the best satellite image for the area. The goal is to mark the deforested areas, if any. In some tiles, the user can identify clearly the brown areas that usually represent deforested areas, as in **image 1**. After finding an area that is deforested, the user marks it using the “Polygon tool”, a feature on the site, as shown in **image 2**. Another feature allows users to flag areas that might be relevant for expert review, as in **image 3**.

They differentiate the tiles using three colours to indicate the kind of area being looked at: **orange** represents an indigenous area in the tile; **pink** a conservation area in the tile; and **blue**, hydrography: rivers, lakes, etc. in the tile. The goal is to

Foundation Blog, October 1, 2012, accessed January 16, 2016, <http://blog.okfn.org/2012/10/01/forestwatchers-net-a-citizen-project-for-forest-monitoring/#sthash.XkVJcXsZ.dpuf>

8 <http://pybossa.com/>

9 Daniel Lombrana, “ForestWatchers.net A Citizen Project for Forest Monitoring”, Open Knowledge Foundation Blog, October 1, 2012, accessed on January 16, 2016, <http://blog.okfn.org/2012/10/01/forestwatchers-net-a-citizen-project-for-forest-monitoring/#sthash.XkVJcXsZ.dpuf>

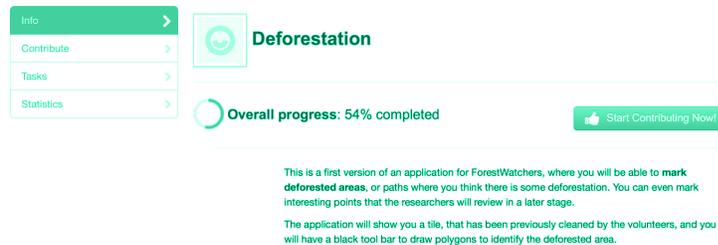
10 Once you select a project to contribute to, the first time you register, you get taken through a tutorial.

help the user distinguish water, which sometimes looks like deforested areas, and to know if the deforestation is happening in indigenous and/or conservation areas.

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Currently there are four applications open to volunteers, but these can change, with new ones added periodically. Anyone who is a ForestWatchers user can create an application, although the most recent addition was in February 2014. Each application has a brief description of the specific location and problem, a tab to contribute and a tab for specific tasks, as well as statistics related to the progress of the project.

Although the platform has not seen any new projects of late, there are still active applications that volunteers can contribute to, like this deforested areas <http://forestwatchers.net/pybossa/app/deforestedareas/> one that is at 54% completion.



CONTACT POINT

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DataShift is a multi-stakeholder, demand-driven initiative that builds the capacity and confidence of civil society to produce and use citizen-generated data to monitor sustainable development progress, demand accountability and campaign for transformative change. Ultimately, our vision is a world where people-powered accountability drives progress on sustainable development.

DataShift is an initiative of **CIVICUS**, in partnership with **the engine room** and **Wingu**. For more information, visit www.thedatashift.org or contact datashift@civicus.org.

