

## Information-based solutions for forest conservation projects

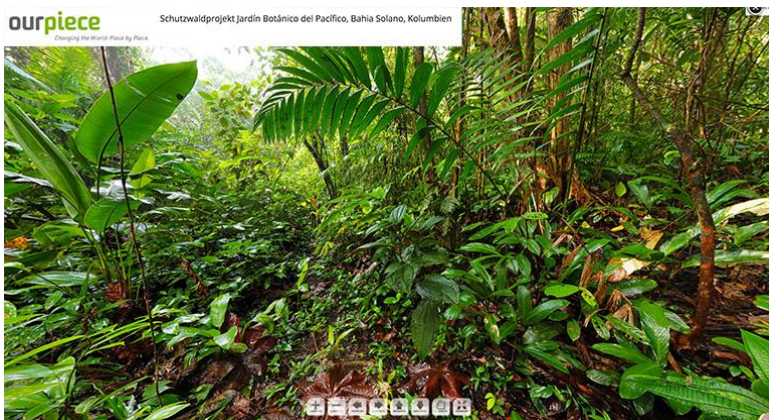
29 November 2018

- Many conservationists and foresters continue to struggle with aspects of forest management, whether it's translating data into actionable information or communicating the results of their work.
- In 2011 Alexander Watson, Stefan Haas, and Patrick Ribeiro founded OpenForests, which provides forest managers with a set of tools to improve data collection, processing, and analysis.
- OpenForests CEO Watson spoke with Mongabay.com ahead of his appearance at the Global Landscape Forum in Bonn, Germany where he is presenting Sunday, 2 December 2018 from 09:00-10:30.



Forest monitoring has experienced a revolution in recent years, with vast improvements in satellite sensors, the emergence of drones, and growing ubiquity of on-the-ground technologies like smartphones and camera traps. These developments have made it easier and less costly to map forests, track reforestation and forest regeneration, and detect deforestation and degradation. But many conservationists and foresters continue to struggle with aspects of forest management, whether it's translating data into actionable information or communicating the results of their work. To help address this situation, in 2011 Alexander Watson, Stefan

Haas, and Patrick Ribeiro founded OpenForests, which provides forest managers with a set of tools to improve data collection, processing, and analysis. OpenForests is now working with projects on five continents, ranging from forest inventorying to conservation projecting. OpenForests CEO Watson spoke with Mongabay.com ahead of his appearance at the Global Landscape Forum in Bonn, Germany where he is present. 360-degree camera capture in Colombia's Jardín Botánico del Pacífico.



## **AN INTERVIEW WITH ALEXANDER WATSON**

### **What is your background and what inspired you to start OpenForests?**

We founded OpenForests almost 8 years ago with the goal to develop information-based solutions for sustainable forest and conservation projects. Before founding OpenForests, we worked in the sustainable forest investment sector, overseeing plantation establishments and forest information projects in Central America and South East Asia. During all those years of working in the forestry sector in developing countries in the tropics, we observed the speed and harshness at which industrialized forest and agro-businesses operate by transforming biodiverse and multifunctional forest landscapes into a kind of assembly line for commodity production. We experienced the negative consequences of this kind of model on the environment and local communities at first hand. We believe, that multifunctional forest landscapes and agroforestry systems are much better solutions for environmental preservation, and also for local communities, for smallholders and all other stakeholders. Despite higher benefits, these models find it difficult to compete with the better organized and well-capitalized industrial sector due to lack of expertise and difficulties to access markets. What inspired us to start OpenForests was the idea that by building and providing efficient tools to those 'smaller' actors, we could contribute in a substantial way to improve the sustainability performance and competitiveness of these projects. Taking into consideration that the fraction of the world population living in rural areas still amounts to 45



percent we see a big need and potential to contribute. We believe, that for a long-term sustainable land management, we need to acknowledge and work with people deeply connected with their land as well as those who strive to make a decent living from it.

### **Can you give us a quick overview of your key services and technologies?**

With our services, we cover the entire information chain, consisting of data collection, processing and analysis, and data-driven presentation of projects. For the initial data collection, we build mobile apps or conduct drone or satellite-based mappings. The analysis

is carried out using different tools and methodologies, several of them developed by ourselves. For the data storage and project presentation, we develop online applications, such as Forest Information Systems or interactive web maps, which allow sharing information with stakeholders and the public.

### **There has been a lot of hype about drones, but you are actually harnessing the technology to generate real applications. Can you explain how you're using drones and the value they deliver for forest monitoring and assessment?**

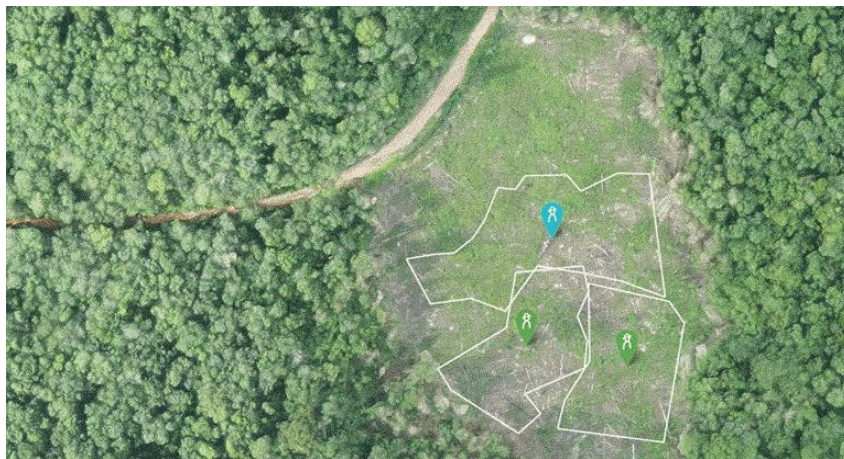
Forests are challenging systems when using drones for monitoring purposes, as we learned it through personal experiences over the past years (Note: check out an article about our experiences here). It is true that drones represent a huge potential to improve the efficiency of forest monitoring in terms of costs, time and data quality. Drones fill a previously existing gap in remote sensing, between field surveys and airborne or satellite-based data acquisition. Cloud-free, high-resolution, 3D-models, accessibility and real-time are just a few keywords related to the advantages of drone-based remote sensing applications. OpenForests is using drones in two ways, for the creation of visual project presentation material as well as for forest monitoring purposes. As shown in the following two examples, for the presentation of projects sites, 360° aerial panoramas allow to exploring selected regions from the bird's eye perspective.



Extract of an aerial 360° panorama, Ecuador, RUNA Foundation. Click the image to see the full panorama.



Extract of an aerial 360° of an informal gold mine in Central Kalimantan, Indonesia. Click the image to see the full panorama. There are many possible applications of drone mapping for forest monitoring and assessment. The drone based mapping applications deliver high values for our clients as they substantially help to reduce monitoring costs for manual work. Drone imagery is also great to visually analyze and communicate the change



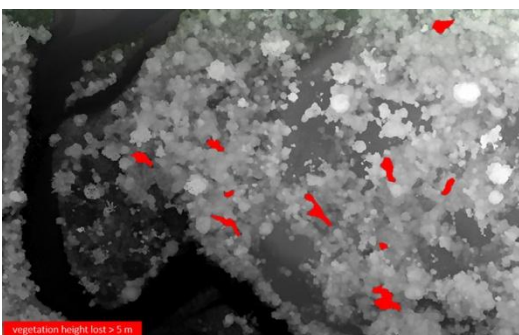
of the forest cover with time series. We provide an example in the following section as part of a large-scale forest mapping.

A sequence of drone images recorded in two consequent years (2016, shortly after planting, and 2017). Reforestation success can be visually documented. This map section is part of the project web map of Fairventures Worldwide. Click the image to explore the web map.

In the context of natural forest management, we use drones for micro

change detection to evaluate the logging impact in concessions. Very high-resolution canopy surface models from before and after logging are compared to quantify the logging impact

Change detection based on canopy surface model comparison before and after logging. The red areas



correspond to a loss of forest height of five or more meters. Further, for planted forests, the drone imagery data allows conducting automated forest inventories. Based on texture and 3D-information an automated detection of tree position, canopy diameter, and tree height is possible at relatively low costs. There is still a big room for improvement of the methodologies to make such applications more robust also with the help of AI.

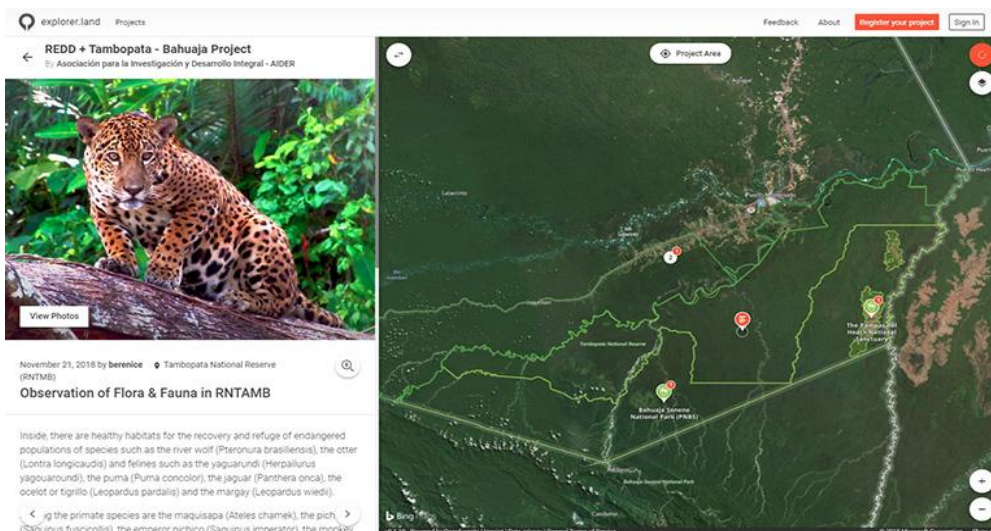


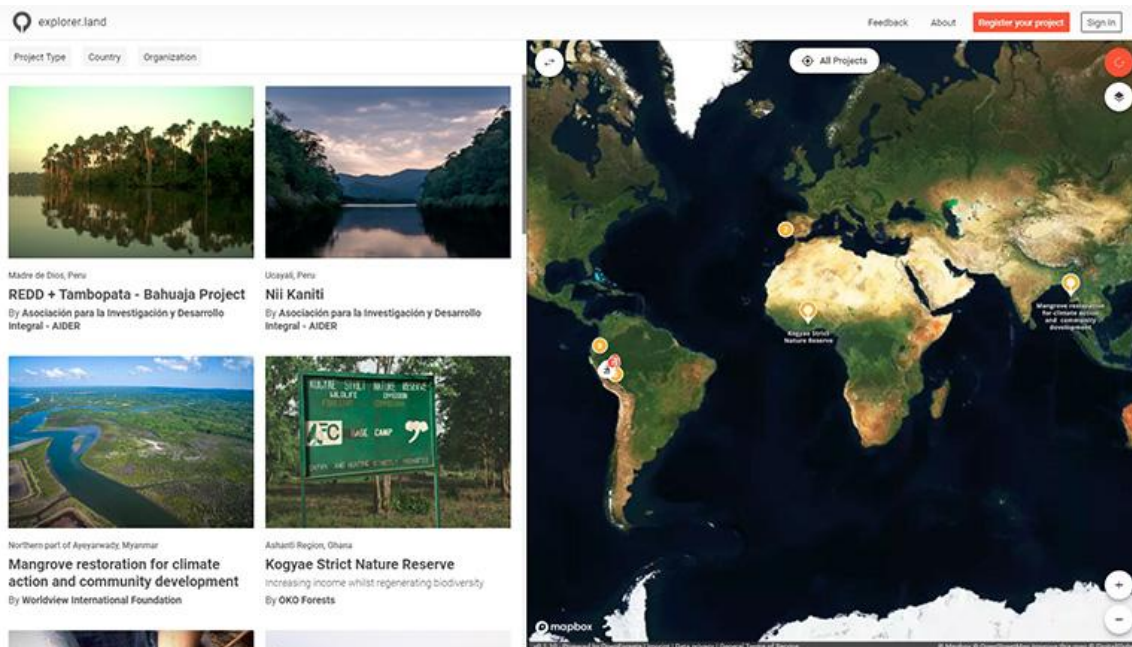
Single tree detection based on the Digital Surface Model. The polygons show the detected tree position and their sizes relate to the canopy size. The polygon's color correlates with the tree height: blue to green gradient corresponds to an increasing tree height. All values in meter. Click the image for more information. Based on extracted tree height values for two consecutive years, the growth rate of each individual tree can be calculated. Green color tones correspond to growth, orange color tones to height lost (due to pruning, for instance). All values in meters.

**A lot of conservationists and forest managers struggle with communicating their work. With explorer.land, OpenForests has built a storytelling platform into its service. How is that working out so far?**

Since the very beginning, we have been working on building customized web map-based communication platforms. These platforms support forest and conservation projects to transparently communicate their efforts, for example, by showing their tree planting progress to their stakeholders and the public. The web maps of WeForest and Fairventures Worldwide are such example. With explorer.land everything we have been working on so far is being poured into one integrated system. With this step, we are realizing a long-time dream: making these tools available for everyone at a low cost. Designed as a software the present version of the explorer.land offers forestry and conservation projects a professional and easy to use map-based presentation and communication platform, which combines high-resolution satellite and drone imagery with multimedia storytelling tools. With explorer.land everything we have been working on so far is

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Geolocated project story. Click the image to read the story. Project search page of the explorer.land platform. Click the image to search the project database. Although we launched it recently, there is already an increasing number of sign-ups. The feedback we are receiving is very

positive and highly motivating. Project owners are just overwhelmed by the new possibilities for improving a transparent and engaging communication with their communities. We are convinced that we have addressed a long existing deficiency in the way sustainable forest and conservation projects are presented. And we believe that, in the near future, there will be a paradigm shift in the way project stories will be told to the world.

**Your website lists a wide array of projects across geographies and forest types. Can you tell us a bit about who typically uses OpenForests?**

We have been working with organizations from all over the world, private companies, NGOs and governmental institutions. The geographic location of a project is of less importance for us. The nature of a project and the possibility to contribute by improving their sustainability performance is what matters for us most. Our goal is to support projects to become more transparent, biodiverse, social, resilient and sustainable.

**Are there any specific success stories that particularly showcase your approach?**

There are several examples of projects that demonstrated substantial improvement in stakeholder engagement and communication by making use of our tools and services. A particularly interesting project is the “1 Million Trees” small-holder reforestation project in Central Kalimantan by Fairventures Worldwide. We have started our collaboration with Fairventures three years ago. Instead of opting for palm oil and gold mining as a livelihood option, Fairventures is supporting farmers to reforest their land with a local but fast-growing tree species to generate an alternative and more sustainable income. We have implemented a comprehensive internal Forest Information System to map and monitor the reforestation program. Further, we conducted drone-based mapping of thousands of hectares in the project area to provide visual evidence of the reforestation progress. What really makes this project stand out, is the decision to make all project information publicly accessible. We connected the internal Information System with a publicly accessible web map portal to disclose the location of each reforestation site with high-resolution drone maps, forest inventory data as well as photos and video. Fairventures have been using the public web map and the open data approach to present and communicate their reforestation activities very successfully. Alongside the tremendous efforts Fairventure experts have put into the project work, the digitization process itself has also contributed to getting the excellent feedback from governmental officials, funding agencies and donors. The path Fairventures took by incorporating our technological tools has helped to win the Google Impact Challenge 2018 among 2.500 applicants. We as OpenForests are happy to have contributed to this great success.

**What has been the biggest challenge with developing and running OpenForests?**

We are a for-profit-organization and have to make a living from the services we offer. In the payment of our clients, we see the appreciation they have for our work. It allows us to proceed with the realization of our ideas and solutions, and increase our impact. Our goal is to support and work with small to medium sized forestry and conservation projects which have a severe need for more professional information solutions. At the same time, these projects often run on a little budget. It has been a big challenge to overcome this financial bottleneck. A solution to this challenge has been the development of standardized information solutions which our clients can use at an affordable cost, as for example the explorer.land platform.

**Do you have any advice for aspiring conservation entrepreneurs?**

Search for a big problem which affects many and try to solve it. Our world has plenty of them! Nothing is more rewarding than working for a great idea and seeing others thrive supported through your own work. If you are passionate and lucky you might help to solve the problems of hundreds or thousands of people and improve their lives, by contributing to better environmental quality at the same time.

SOURCE:- <https://news.mongabay.com/2018/11/information-based-solutions-for-forest-conservation-projects/>