

# Online campaign against invasive plants

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Four alien invasive plant species that can damage the local nature and the infrastructure: Canadian goldenrod, knotweed (top row), Himalayan balsam and the giant hogweed (bottom row). Credit: [www.neophyt.ch](http://www.neophyt.ch)

Neophytes – invasive plants that are alien to the region – are a huge burden on the public purse. The ETH spin-off "In-Finitude" has set up a new online platform right on time for the growing season. This displays the locations of the invasive neophytes across Switzerland and offers support to landowners and local authorities in combating them.

The founder of the ETH spin-off "In-Finitude", Marc Vogt, is not modest when asked to estimate the market potential for his product: "Invasive neophytes cause damage amounting to some 1400 billion francs worldwide, and we are currently the only provider of a digital

solution to systematically combat this threat." Invasive species are the second biggest cause for the loss of biodiversity after the destruction of habitats by humans. Vogt is therefore convinced: "We need to change our way of thinking, otherwise local species will be driven out by neophytes. And the longer we delay in mounting an effective campaign, the more it will cost."

In-Finitude's contribution to the global problem: an online platform for more efficient measures to combat [invasive alien species](#). A beta version of "[Pollenn](#)" went live a few weeks ago. This provides the type of charts found on Google Maps that allow users to track the countrywide spread of 18 invasive neophytes that the government has banned since 2008 (see box), and record their own findings as well. For every entry, the site offers additional important information such as the habitat, spread, environmental problems and legal aspects. As an identification aid, the platform also provides photos of the plants and an estimate of the cost per square metre of removing them.

## **Facilitating communication between players**

According to the nature conversation group Pro Natura, Switzerland spends over 20 million francs annually keeping invasive neophytes out of environmentally valuable sites. Due to lack of data, Vogt and his co-worker Alain Bachmann think the actual amount may be significantly higher. The damage caused by alien species (including animals) in the USA runs at around 137 billion dollars a year, according to a report. "Public awareness of the problem and an interest in getting involved is therefore steadily growing," Vogt reports.

Invasive neophytes cause damage to roads, waterways and infrastructures, they can sometimes render farmland infertile and can also be highly allergenic, as exemplified by the notorious common ragweed (*Ambrosia* genus). The costs are borne by the taxpayer. "Our

platform is intended to facilitate communication between local authorities, land owners and citizens, as well as to support all players in finding the most efficient way to tackle the problem," Vogt explains.

This has prompted In-Finitude to develop a business idea: access to Pollenn for information about invasive neophytes is free, as is recording new findings. The only charges the company applies are for using the platform as a communications channel. For example, local authorities can display information and offer assistance if someone reports a new finding in their area. In return, the authority will pay In-Finitude a fee of 2900 francs in the first year. Special subscription rates are available for gardeners and other service providers.

However, Pollenn will only be successful if landowners join in. "We are offering landowners professional help so they can protect the value of their property," explains Vogt. They could be in for a nasty surprise, insofar as they may be obliged to spend thousands of francs cleaning up land damaged by invasive neophytes and their detritus, such as roots and seeds. Japanese knotweed, for example, is particularly difficult to eradicate: to remove all traces of it completely, including the roots, the soil has to be dug to a depth of three to five metres. If landowners put off the task for too long, the value of the land can be significantly eroded. Quite apart from that, there is a legal obligation to remove some of the invasive aliens.

"On Pollenn, landowners can find all the information they need at a glance, set out clearly and intelligibly," Vogt says. The site also advertises specialist gardening firms (which pay to advertise their services) so that landowners can quickly find suitable partners qualified to clean up their land.

## **Ecoworks and BioZH as forerunners**

Over the past years Marc Vogt has been able to acquire a vast amount of experience in business models based on sustainability services. While studying for his Masters at the Department of Management, Technology and Economics (D-MTEC) at ETH Zurich, the environmental scientist developed "Ecoworks" in 2007, an platform through which ETH students and staff can submit ideas for reducing CO2 emissions at the university.

In 2010 he founded In-Finitude. His primary objective was to launch new educational formats to support a society that makes ecology, rather than the economy, the focal point of its activities. In 2013 the project "BioZH" came to life ([www.biozh.ch](http://www.biozh.ch)). BioZH was originally set up as a networking platform to promote environmental awareness and biodiversity in Zurich. Residents and company employees were encouraged to take part in games and earn points which they could swap to attend local activities, films and workshops on topics such as urban gardening. "But the system was too complex and difficult to put across; most people did not understand the idea," Vogt now realises. Since then, BioZH has limited itself to organising courses on edible wild plants, biodiversity and medicinal herbs.

As a second line of activity, In-Finitude took on mandates in the area of sustainability for cantons, universities and companies. In 2015 Vogt recruited Alain Bachmann to the team. He had already completed a forestry apprenticeship at ETH Zurich and, after working for a while in the banking industry, graduated in environmental technology at Zurich University for Applied Sciences (ZHAW).

## **Using the existing database**

When setting up Pollenn, Vogt and Bachmann have spent the past months with dozens of representatives from the cantons, local authorities and state departments, as well as sector specialists. The project attracted

interest from the Federal Office of the Environment (FOEN) and the Federal Office for Agriculture (FOAG), as well as the industry association "JardinSuisse", and has won start-up funding to develop a prototype of the online platform.

There has also been close collaboration with "Info Flora", an established, non-commercial database for documenting wild plants and their physical location. This contains around 100,000 entries on neophytes. In-Finitude uses this for visualising known locations where they are found. Any new discoveries on Pollenn are usually recorded in Info Flora as well. The initiators claim that both platforms therefore benefit from the cooperation. At the same time, data protection rules mean that users are also able to record findings on their private land, without these being visible to other users.

So far In-Finitude has already acquired the city councils of St. Gallen and Uster as clients. They are also currently in discussion with other municipalities and [local authorities](#). Recently the first query has been received from France as well. In order to expand the platform more quickly, the ETH spin-off is currently looking for investors. According to the business plan, the profit made from the Swiss market should be around two million francs by 2019. Although that is a long way short of the 1400 billion that Vogt estimates to be the global market potential, it would still be a healthy start for a company that is committed to preserving Switzerland's biodiversity.

## **Neophytes and the Ordinance on the Release of Organisms into the Environment**

There are more than 500 alien plant species (neophytes) in Switzerland. 58 of them are classed as invasive and have the potential to cause environmental, economic or health damage. The level of damage is

particularly high for 18 of these [invasive plants](#), including the rhus typhina (staghorn Sumac), Japanese knotweed and Canadian golden rod. The government therefore passed the Release Ordinance in 2008 banning the sale, distribution and planting of these neophytes. Since then, the cantons are obliged to combatting invasive neophytes and stopping their spread.

Provided by ETH Zurich

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