Red Listing the Plants of Madagascar
with a little help from some friends

Steven Bachman

Pleurotus nebrodensis (Inzenga) Quél.
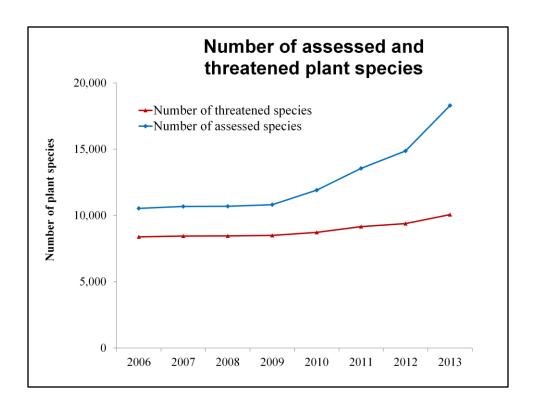
The only species of Fungi on the Red List (2014)

This was the only species of Fungi om the IUCN Red List in 2014. Very little progress has been made on assessing the extinction risk of Fungi.

Number of assessed and threatened plant species

What is the situation for plants? Up to 2015 there are about 20,000 species of plants listed on the IUCN Red List (including not-threatened species). At this rate it would take decades before we have an assessment of all plants on the Red List.
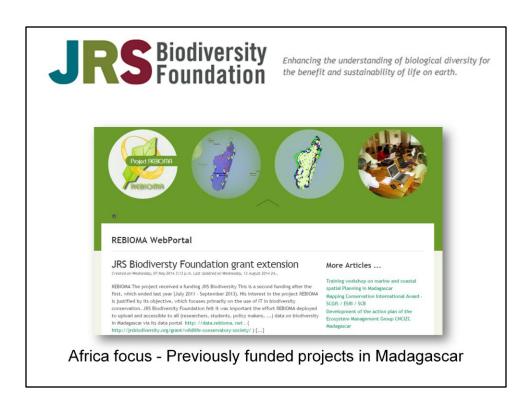
What can be done?
Prioritise efforts

How?

- focus on a highly threatened flora with…

…low representation of plant species on the Red List

…potential to build capacity for Red Listing and based on…
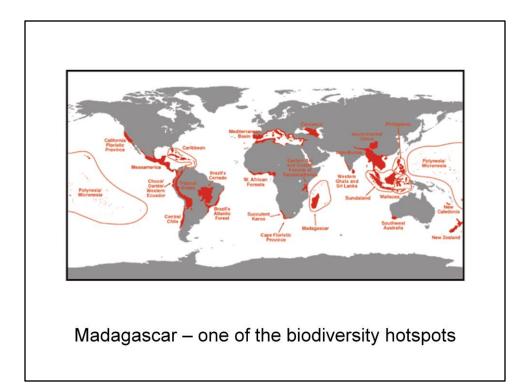
…a strong foundation of botanical data

Get funding!
Try experimenting with novel approaches

We need to prioritise our efforts. Focus on those areas where we think the flora is threatened and where there is capacity to work – as well as opportunities to gain funding.

Africa focus - Previously funded projects in Madagascar

The JRS Biodiversity Foundation have provided funding for projects related to mobilising biodiversity data and utilising new technologies in Africa.

Madagascar – one of the biodiversity hotspots

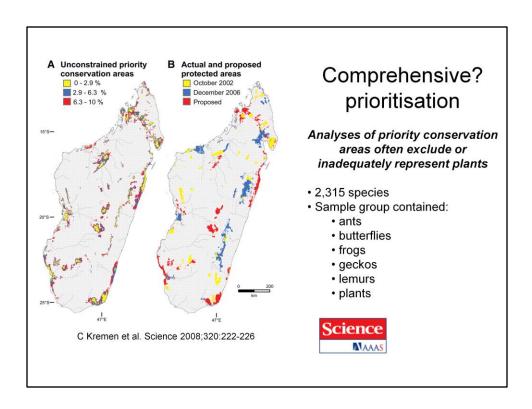Madagascar is a recognised biodiversity hotspot.
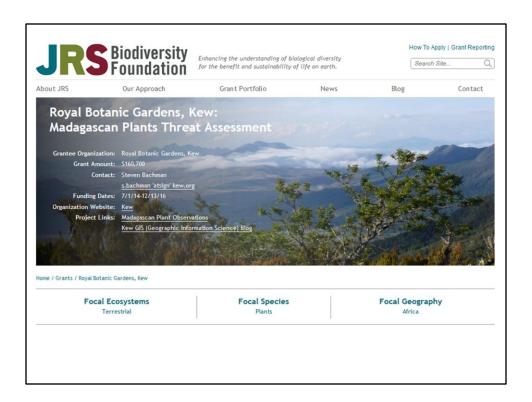
Kew Madagascar Conservation Centre

There is an excellent foundation of botanical expertise in Madagascar including representatives from institutions such as the California Academy of Sciences, Missouri Botanic Garden and the Kew Madagascar Conservation Centre.

2015 Red List update:

35 yams – assessed by James Kennerley and Paul Wilkin in consultation with Crop Wild Relatives Authority and GSPM

Assessments in review

Some recent successes in Madagascar, but still only a very small % of plants on the Red List

In 2015 new species will be added to the Red List. For Madagascar this will include species assessed as part of the IUCN Plants for People project, as well as focussed work on taxonomic groups such as the yams (Dioscoreaceae).

Comprehensive? prioritisation

Analyses of priority conservation areas often exclude or inadequately represent plants

- 2,315 species
- Sample group contained:
  - ants
  - butterflies
  - frogs
  - geckos
  - lemurs
  - plants

C Kremen et al. Science 2008;320:222-226

Without a more comprehensive view of threatened biodiversity in Madagascar it will be hard to ensure that conservation efforts are effectively prioritised.
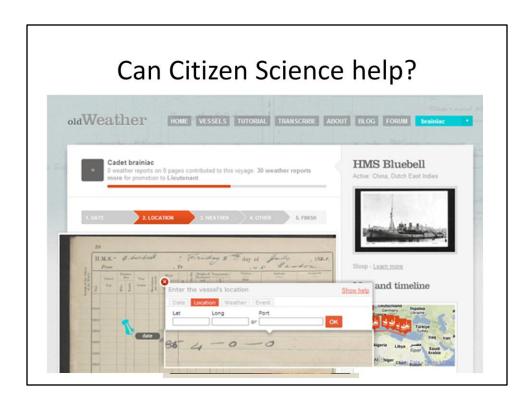
In 2014 the JRS Biodiversity Foundation supported a project to investigate the mobilisation of plant data through the use of new smart phone technology and a citizen science platform. The increased generation of biodiversity survey data can help to inform IUCN Red List threat assessments.
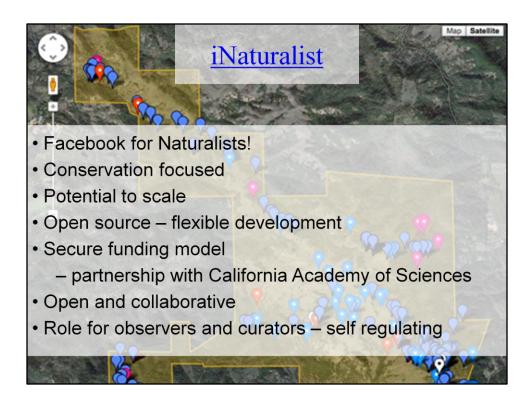
1. Enhance the way we gather data in the field by utilising smart-phones and citizen-science tools and techniques.
2. Increase capacity for Red Listing in Madagascar
3. Use Red List data to guide conservation action and meet global targets (GSPC, Aichi 2020)
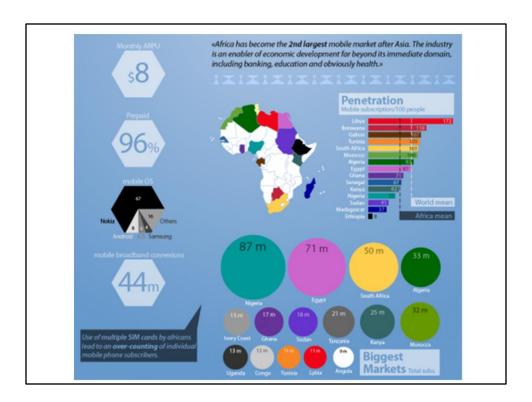
The project has three main objectives:

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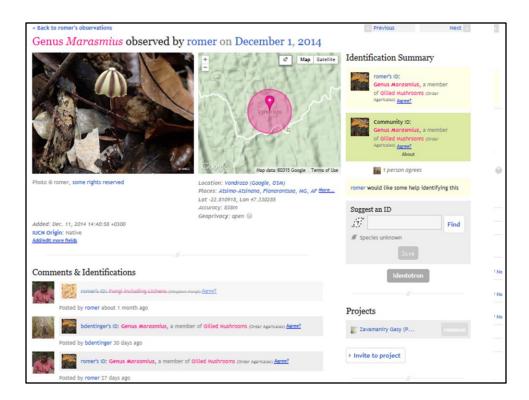
Can Citizen Science help?

Citizen Science has proven to be a useful mechanism to gather large amounts of data. It has helped many scientific projects such as old Weather that looked at global climate data.

iNaturalist

- Facebook for Naturalists!
- Conservation focused
- Potential to scale
- Open source – flexible development
- Secure funding model
  – partnership with California Academy of Sciences
- Open and collaborative
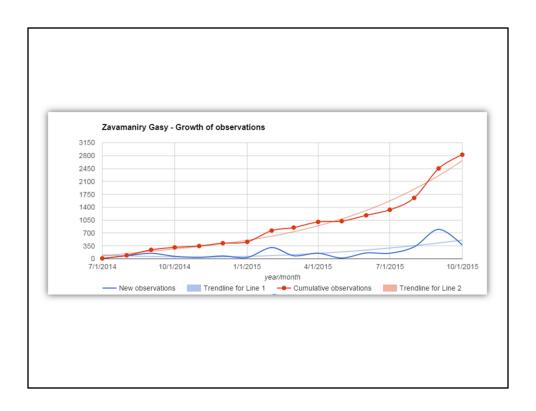- Role for observers and curators – self regulating

iNaturalist is a citizen science based project that provides a platform for users to add observation of biodiversity. It includes social media aspects so is a bit like Facebook for Naturalists.
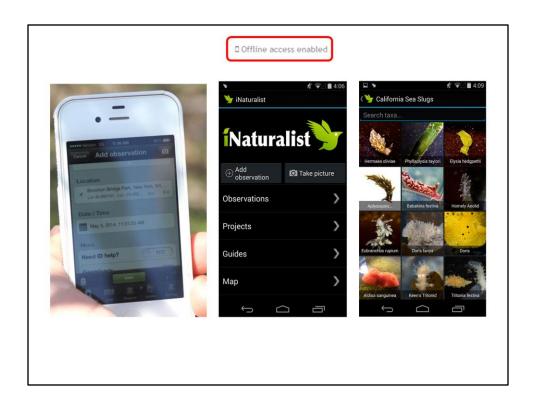
But can it work in Madagascar? There is evidence to show that the use of mobile telephones is growing rapidly and this will soon include smart phones. Mobile phone network coverage has grown significantly in recent years.

Here is an example of an iNaturalist observation. The basic elements are a photograph of an organism, the location where it was observed, the date of the observation and if possible the scientific or common name. When uploaded, the observation is exposed to the community where the name can be confirmed and the observation can be used to support scientific or conservation projects.

Zavamaniry Gasy - Growth of observations

A pilot project called 'Zavamaniry Gasy' was developed to investigate whether plant observations could be gathered using this approach. The initial results are very encouraging – to date there are nearly 3,000 observations.

The iNaturalist project includes a smart phone app that can be used on Android or iPhone operating systems.

iNaturalist for Madagascar

- Develop a video training package using multi-language screencasts
- Develop iNaturalist Guides for 100 priority taxa
- Add functionality to Android iNaturalist app
- Add smart-phones to KMCC field kit
- Run a 'Bioblitz'!!

The main outputs of the iNaturalist Citizen Science element of the project were:

- Develop a video training package using multi-language screencasts

- Develop iNaturalist Guides for 100 priority taxa

- Add functionality to Android iNaturalist app
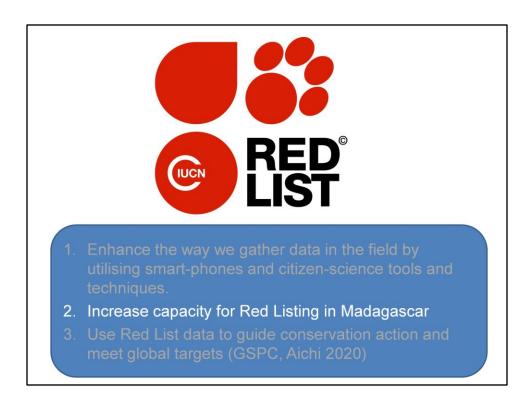
- Add smart-phones to KMCC field kit

- Run a 'Bioblitz'!!

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The second major aim was to increase Red List capacity in Madagascar.

Red List training in Jordan, 2012

This will be delivered through a training workshop.

Growing plant Red List capacity

- Deliver IUCN Red List training course
- 20+ trained including students, NGOs and KMCC staff
- Train the trainers
- Generate and publish at least 100 species Red List assessments

The outputs of the Red List element of the project include:

- Deliver IUCN Red List training course
- 20+ trained including students, NGOs and KMCC staff
- Train the trainers
- Generate and publish at least 100 species Red List assessments
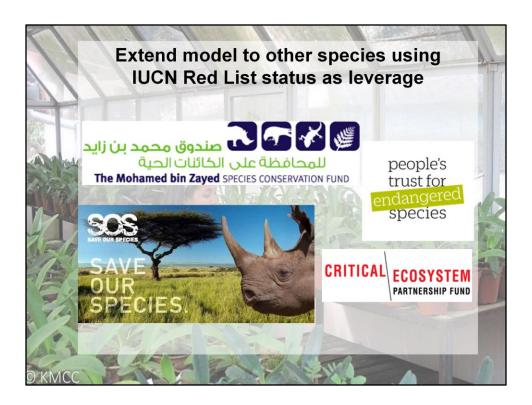
Enhancing the traditional approaches to gathering data and utilising new technology will make the Red List assessment process quicker, and more effective.

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3. Use Red List data to guide conservation action and meet global targets (GSPC, Aichi 2020)

The final element of the project is the ensure that these data guide conservation actions.

This flagship project helped to conserve a highly threatened orchid – Angraecum longicalcar, but it is just one species!!!! There are likely to be hundreds of threatened orchids in Madagascar, but if we don't know which ones they are it is hard to direct conservation activity.

Extending this model to other species means we can leverage more funding and scale up our conservation activities.

Conclusion

• Plants are poorly represented on the Red List and rate of new assessments is slow

• Building capacity through training and using novel approaches to data capture has potential to scale up Red List production

• Outputs of this project will help inform site based conservation as well as large scale prioritisation

Acknowledgements

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