NEWSLETTER II

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UNIVERSITY OF EASTERN FINLAND

Saimaannorppatutkimus
Saimaa ringed seal research

Welcome to the second Wildlife Photo-ID newsletter!

We are pleased to present the second Wildlife Photo-ID network newsletter, keeping you informed of the progress in our project and of other connected issues. Of course, we appreciate a lot if you forward this newsletter to interested colleagues and potential interest groups.

This issue will bring you the latest information about the first workshop held in early November 2014 in Joensuu (pages 2-6). The second workshop will be held in late February 2015 in Koli, Finland (page 8).

The Wildlife Photo-ID workshop info is available on our website (www.uef.fi/fi/photo-id) and you will find us also on Facebook (www.facebook.com/ groups/photo.identification/).

Our goals

International Wildlife Photo-ID network workshops are funded by the Finnish Cultural Foundation. The workshops bring together experts in the fields of wildlife ecology, conservation, monitoring, photo-ID, crowd sourcing and computing from several different countries. The workshops aim at developing different photo-ID methods for several animal species, including automatic applications, especially focusing on implication for endangered species research and monitoring. The workshops offer great opportunities for researchers to network.

First workshop was held in early November 2014 in Joensuu, Finland

 Altogether 34 experts from 10 different countries related to the themes participated to the workshop. The themes of the first workshop were camera techniques and their applications and photo-ID; storing and management, computer programs and their development suitable for different species.

You may find thoughts on the first workshop by our keynote speakers Renate Reijns and Jurgen den Hartog on page 3-4. We also wrote "learned from the first workshop" on next pages (pages 5-6). On a page 7 you may find instructions on how to grab still photos from video by one of the participant of the workshop, Tom Jenkins.

All the talks were showed live via our website link, over 35 guests were following the talks. In addition to the live broadcast, you may now watch the keynote talks (Lex Hiby, Patrick Pomeroy, Chuck Stewart, Glenn Gailey, Leszek Karczmarski, Renate Reijns and Jurgen den Hartog) via our websites (link to YouTube) https://www.youtube.com/playlist?list=PLaNfvlZd-a3UarXVi4RqDxNlbo71Kxl7G

We hope that you enjoyed the content of the workshop!

Organizing team of the workshop

Thoughts on the first photo-ID network workshop by Renate Reijns & Jurgen den Hartog

This first workshop has been very successful and enjoyable. Both wildlife experts and computer scientist from all over the world worked together on the topics of photo-identification and (photo-)data management. There was plenty of time for fruitful interaction and feedback as well as time to get to know each other.

During the workshop it became clear to us that there is a much larger variation in how to do field-work and get data from cameras than we ever thought possible. Some researchers will only have a handful of good images per day while others may get tens of thousands of images per day. The quality of the images will vary as well. Sometimes all photos are taken by hand by the researcher, sometimes tourists contribute as well and sometimes most photos are taken automatically based on movement. When experts take the photos quality is typically best. A research goal such as estimation of population size puts different constraints on data collection compared to finding out migration patterns or social behaviour. Finally, terrestrial photos may require different photo-id techniques than photos taken underwater or at night.

All these (combinations of) differences will lead to different approaches to process the data. With so much variation it should be clear that a researcher must choose his/her tools with care.

While researchers need to choose their tools carefully, the developers need to improve their software as well. One example is to facilitate exchange of data between tools for photo-id and tools for data management. Another example is the combination of multiple photo-id approaches. Combining approaches is needed for the hard problems e.g. whale flukes and dorsal fins, or ringed seals. If you are lucky, you have this perfect shot of both straight flukes with trailing edge, scars, spots and patches all clearly visible. But when not so lucky, light conditions make a dorsal fin look black, and all you can use is the trailing edge and general shape. When seals are snapped automatically by game cameras you may end up with a photo of mostly seal butt which need to be compared with images taken from more frontal angles. To handle these all too common difficult cases, multiple photo-id techniques are required within a single system to be able to make a next step.

Although there are still some very difficult photo-id problems out there, on the bright side, all photo-id tools presented in Joensuu had completely different approaches, thus potentially allowing for the combination of them to make this next step. In the meantime, as a researcher keep all your original data as even information from poor images may (eventually) help. One thing became clear during the workshop for all id-tools: the more information there is about an animal the better the possibility of recognition!

Ultimately, photo-identification is just one of the steps in the whole research process where you want to gain more knowledge about a species. In other words: photo-identification is essential in facilitating research but not a goal in itself. The next important step is data management and one tool for exactly this was presented. We are sure more will be discussed about management and visual presentation of data during the second workshop.

So how do we proceed now? To enable easy contact, benefit from each other's experiences, and exchange knowledge and best practices, a basic user forum will be organized using Google groups. Hopefully, this forum will also be used to get a better overview of all useful id-tools out there while the starting users can seek help how to choose the tools best suited for their research. We are certainly willing to participate!

Some final thoughts to ponder next to the Christmas tree:
•   Are research questions driven by management/conservation (research money so to speak) or by pure science? And what are the consequences or biases you may introduce if you accept external influences?
•   What can we not answer by photo-id or what are the limitations of photo-id?
•   Is involving the public as citizen researchers to educate, be transparent while getting more data (and possibly money), worth the extra burden in communication while many photos will be of poor quality in terms of photo-id?

These two days have been very inspiring and we thank Mervi and her great team for organizing!

Jurgen & Renate

Participants of the first workshop on a lunch cruise

Learned from the workshop

We were very happy to get such a great speakers. All the speakers expanded the knowledge of photo-ID techniques, softwares and practices. Here we gathered some thoughts based on what we learned about these presentations and also from the group works. There were also some tips for the things that should be kept in mind when starting photo-ID. First of all: **Permanent pelage patterns (like spots), scars etc. are needed for photo-ID. If you can't recognize different individuals by their patterns, no program can.**

Why photo-ID?

Photo identification of wildlife species can be used in variety of research interest. It can be useful tool when studying ecological insight, population size count (abundance and survival), colonization, date of birth, animal life span, offspring numbers, social networks, fidelity, migration, land use by competing species, predator-prey dynamics, monitoring alien species absence/presence, forensics (e.g. illegal wildlife trade), anthropogenic effects, animal health and so on.

Challenges

Some mutual challenges could be found when talking about individual recognition programs. These topics should be taken into consideration if possible when gathering the photo-ID data:

- Body angle of the animal: curvature of the body distorts the pattern.
- What marks are usable? How much do the markings change during lifespan of the animal/ during the study period?

Challenges continue...

- What kind of data is required to answer the study questions, i.e. what requirement do the statistical analyses have? For the purposes of conventional mark-recapture analysis, for example, one should make sure that all the individuals are "tagged" only once (always from left side etc.). We are probably going to continue discuss about these requirements in our 2nd workshop.
- Quality of the photos (bad weather, animal too far away, low resolution, fast moving animals).
- Nocturnal animals and local access: technical solutions, for example game cameras and unmanned aerial systems (UAS) such as copters and fixed wings, can be helpful.

Tips

- Take extra photos because multiple pictures are important
- When contacting to software developers, please provide database, which consists 2–4 photos of at least 30 study animal individuals, photographed at different places and times (reference data)
- Take photos on both sides of the animal if possible
- Video vs. photos (video is in many cases more suitable for nocturnal and fast moving animals, find out more about how to grab still photos in page xx by Tom Jenkins)

The **keynote speeches** are found via YouTube link:
https://www.youtube.com/playlist?list=PLaNfvlZd-a3UarXVi4RqDxNIbo71Kxl7G

We also gathered some **useful links** to photo-ID programs to our websites:
http://www.uef.fi/fi/photo-id/photo-id-tools-useful-links

Sign up to our **forum** and network (please contact us first so we can add you to the forum):
www.uef.fi/photo-id/forum

Workshop dinner at the Fransmanni

How to pick up still photos from video by Tom Jenkins

A few people I chatted to at the workshop had large quantities of video (mostly from game cameras) from which they needed to grab still photos. I had a ten hour stop-over in Helsinki, and, well... I humbly present: Video Split for Windows. You can download the installer at https://github.com/itsravenous/videosplitter/releases/tag/v0.1.0 (the green button is the one you want).

I've tried to make it self-explanatory, but here's a quick guide:
1) Run the installer
2) Open Video Split
3) Click the plus icon in the toolbar to add videos to the list. You can do this as many times as you like. (Click the duster icon to clear the list)
4) Click the "Browse" button to choose the folder where frames should be saved (each video will have its own sub-folder)
4) Choose how many frames per second to export
5) Click "Split videos into frames"
6) A dialog box will appear once splitting has finished, with a "show frames" button you can click to open the frames folder and see your still photos
7) Find the best frames (hopefully a nice clear, perpendicular shot showing lots of pattern!) and discard the rest

If you run into any problems, raise an issue (https://github.com/itsravenous/videosplitter/issues/new), email me, or tweet me @itsravenous. Hope it's useful!

Tom Jenkins
http://www.itsravenous.com

Some of us were lucky and saw a wolverine during the field trip

The Second Workshop 2015

The second workshop will be held in late February (23-26) in Finland, Koli. Koli was originally the place where the first workshop was supposed to be held, however due to the renovate of the place, the first workshop was held in Joensuu instead. Now the hotel is even better and there are many possibilities for all kind of winter activity during the free time.

The theme of this second workshop is photo-ID data analyzing: demography, dispersal, population size, survival rate, social behaviour and changes in habitat. We hope that at the end of the workshop we could be able to answer to questions below:

- How many there are?
- What happens to them?
- What do they do?

The call for the second workshop is now open. The workshop is by invitation only, this newsletter is not an invitation.
Please contact us (photo-id@uef.fi) if your expertise fits to our themes.

Humpback whale tail by John Moran

© Barun Khanal

Happy Holidays!

The Saimaa ringed seal research group of University of Eastern Finland (UEF) coordinates the workshops.

organizing committee of the workshop: Mervi Kunnasranta* (chair), Marja Niemi*, Olli-Pekka Tikkanen, Markku Tukiainen and Meeri Koivuniemi* (coordinator)

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We are always pleased to hear your comments and opinions on anything relating Wildlife Photo-ID network and/or coming workshops. If you have any questions or suggestions, please do not hesitate to contact us by e-mail (photo-id@uef.fi) or Facebook.