



Wild Wild WEB: Wildlifew enthusiasts' use of the Internet

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ABSTRACT

ARKive is a web site on endangered species. We describe e-learning aspects of wildlife enthusiasts, consisting of two (overlapping) segments: conservationists and general public wildlife enthusiasts. Both segments are passionate about wildlife and conservation issues, with conservationists being most passionate. Conservationists have used the Internet longer and also use email more. Work is still the main place to access Internet but 90% of the conservationists also have Internet at home. Most find information through specific searches, rather than visiting a familiar website, entering simple and general keywords. The Internet is seen as an awesome source of references whilst at the same time it is taken for granted. Although they are critical, people are not cynical about information on the Internet. They trust known and respected sites. Most people are hesitant about partaking in forums or chat groups and prefer email. Almost a quarter of the combined sample regularly downloads video and this much more Internet experienced group has a faster connection at home, look for wildlife information more often, are more likely to use chat groups, download photographs and they are more likely to use search engines. Potentially there is a large audience for a site like ARKive, consisting of motivated and experienced Internet users with a passion for conservation and wildlife issues.

Keywords

User studies, e-learning, hobbyists, wildlife, conservation

INTRODUCTION

A digital "Noah's ARK" is being developed by the Bristol based Wildscreen Trust. Called ARKive, it will be a library of natural history films photographs and sound recordings of endangered species, accessible via the Internet, accompanied by extensive meta-data [1]. HP laboratories Bristol are supporting ARKive with a dedicated research team.

There will be a number of levels of access aimed at different age groups and users in education and research [2,3]. However, ARKive is targeting a much wider audience, including people who are active in conservation groups or simply have a keen interest in wildlife and conservation issues. Currently we lack a good understanding of this potentially wide audience.

Here we report on three studies: an in-depth interview study, and two questionnaire studies. The questionnaires (one pen and paper the other on-line) were based on the issues and insights resulting from the interview study and often served as a reality check, a valuable lesson for those of us who rely on interview studies. The aim was to get a better idea of people who might want to access the ARKive website and how they use the Internet to support their interest in wildlife and conservation. In addition the studies provide the HCI community with valuable insights in how motivated hobbyists use the Internet for e-learning.

METHOD

Ten males took part in the interview study; five were part of the same voluntary conservation organisation. Fifty people, 27 females (mean age 26) and 23 males (mean age 31) filled out the pen and paper questionnaire. They were visitors of the "Wildwalk" exhibition in Bristol and will be referred to as the "General Public" wildlife enthusiasts. The questionnaire consisted of 100 mm graphic rating scale questions [4] interspersed with occasional check boxes and open questions. Twenty-five females (mean age 36.1) and 43 males (mean age 43.82) responded to the on-line questionnaire and featured the same questions as the pen and paper one. To emulate a graphic rating scale on a computer we used a scale of 21 radio buttons. Participants were recruited via emails to conservation societies across the UK and we shall refer to them as the "Conservationists". For statistical analysis we scaled the pen and paper scores down by a factor five. Thus the 21 point rating scale questions were scored between 0 (= low) and 20 (= high). When means are given, we use the capital letter "M". Most analysis concerned the Analysis of Variance (ANOVA) and F-ratio's with their level of significance (p-value) are provided for most results.

RESULTS

Describing the samples

Because Internet activities take place in the wider contexts of people's lives and interests, we characterised the two samples, general public and conservationists, in ways that pertained to their interest in wildlife and conservation issues. We found some interesting differences as well as communalities. There were also gender differences.

Most respondents are passionate about wildlife and conservation issues, the conservationists ($M = 16$) however are slightly but significantly ($F_{(1,117)} = 4.3, p = .041$) more passionate than the general public ($M = 14.3$). People in the interview study are united in their deep concern about what they feel is irretrievably lost for future generations.

"In my father's lifetime all this would have been the same as it has been for the last three million years and in just the space of thirty odd years future generations are just going to miss out on all that sort of thing"

The conservationists ($M = 9.8$) are also significantly ($F_{(1,70)} = 5.8, p = .019$) more active in their organisations than the general public ($M = 6.2$). This may not be surprising. However their modest level of activity does not match their passion. Some interviewees refer to a dampened level of active involvement, as they grow older.

"Yeah, I probably was passionate. I think I've sort of mellowed a bit, particularly with a family and so on. It's just still a very strong concern in the back of my mind but in terms in doing anything active, I'd say the last few years, there just has not been the time to do it."

Men ($M = 10$) report to be significantly ($F_{(1,70)} = 7.7, p = .007$) more active than women ($M = 6$) in conservation organisations. Under half of the general public sample was member of at least one conservation group, whereas 66% of the conservationists belonged to one. Memberships concerned a plethora of organisations, reflecting how many there actually are in the U.K. All partake in outdoors pursuits; the most popular is walking. Although the use of binoculars was surprisingly low, the conservationists ($M = 9.4$) use them significantly ($F_{(1,116)} = 6.5, p = .012$) more (general public $M = 6.3$), and, across the group as a whole, men ($M = 9.4$) use binoculars more than women ($M = 6.3, F_{(1,116)} = 6.9, p = .01$). But there are also other means of taking in the (not so) fresh country air:

"Rowing, so I know all about the canal conservation lot and how all that goes because as rowers you are always asked to monitor the states of the canals and the rivers that you row on and you tend to be the first person to actually, if somebody is pouring in chemicals, because you'll smell it first and you'll see all the dead fish rising."

Similarly almost 70% of both groups said they regularly read a wildlife or conservation magazine. Of those magazines BBC wildlife magazine was a clear winner.

"I read, well, whenever I can afford to buy it, BBC Wildlife, subscribe to the Ecologist, and then just get magazines as and when I bump into them, I mean, I keep up to date with stuff, in all the papers, and, I'm member of WWF, the whale and dolphin people, so, I'm always kept up to date with their campaigns, I'm on the Internet, generally I keep my eyes and ears open."

The majority are people with a small political "p".

"I don't go and picket the gates However, I do have an awareness a political awareness with a small "p". "

The graph below (figure 1) depicts, on a scale from 0 (no support at all) to 20 (high support) their level of support for the aims of WWF, Friends of the Earth and Greenpeace as well as their low approval of the anti-globalisation movement. There is an unrivalled high support for the World Wildlife Fund.

"My passion is conservation. I've seen pressure work at management level - - - I mean it does work really and if you can offer acceptable levels of compromise then that's the way forward"

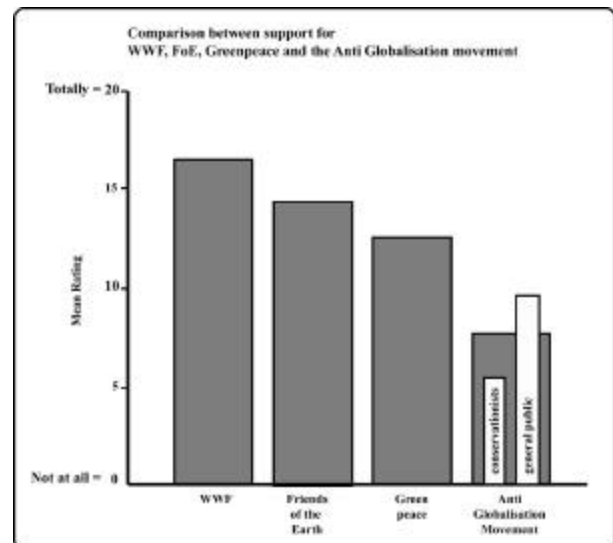


Fig 1: Size of political "p"

Having said that, there is also an above average support for Friends of the Earth and Greenpeace. Repeated measures analysis between support for the four organisations was highly significant, $F_{(3,333)} = 106.5, p = .000$. Paired comparisons between all four groups were all significant. In a separate analysis, the difference in support for the anti-globalisation movement between the two segments proved significant: $F_{(1,112)} = 5.3, p = .023$. The general public showed more support.

General Internet use

As our main interest is in how people with an interest in wildlife and conservation issues would use a site like ARKive, we asked about various aspects of Internet use. In contrast to the previous section where we found clear differences between the samples, there were only a few

variables, which showed up differences, and there were no gender differences at all. The conservationists had significantly more Internet years on the clock ($M = 4.98$ years) than the general public ($M = 4.3$ years), $F_{(1,117)} = 9.4$, $p = .003$. Although email use is high for both groups, conservationists also use email significantly more, $F_{(1,117)} = 5.8$, $p = .017$. The difference between subjective ratings of intensity of browsing the web and the use of email, across the two samples was highly significant in favour of email use, $F_{(1,116)} = 22.5$, $p = .000$.

The people in the interview study all noticed how Internet has crept into their life and how much more useful as well as useless information there is these days, compared to the early days.

“Since going to university really, eh, 1995, probably a little bit before, at 1994. Very good for doing projects and if you want any extra data or you know, you want some research, then the Internet is a gift. --- [These days] there’s a lot more stuff on it but that is just natural --- everyone’s got email, is like everyone’s got a mobile phone, everyone’s got email.”

Work is still the main place to access Internet with 78% of the general public and 92% for the conservationists. 90% of the latter also have Internet at home. Compared to a few years ago home access has indeed grown considerably, in our sample 72% of the general public have Internet at home. Both samples reported on average to have a reasonably good connection to the Internet at home. Libraries and Internet cafes are used far less.

Browsing for most people is a very individual activity, not often carried out with others.

“I just get frustrated, because I just like to just do it. She likes to sort of just talk about it and think about all the different ramifications. I’ll be going: yes, do this, go there, sort of thing; and she’ll be going: No, no! Wait, wait, wait! So we don’t have hours together. We’ll just go for a period of five or ten minutes.”

We asked what respondents do more: Getting a quick update from a familiar website or searching for some specific information? The extremes of the rating scale were "Quick update" (= 0) on the left hand side and "Specific search" (= 20) on the right hand side. The mean seems to be somewhere in the middle, 12.8, slightly in favour of "searching". However, inspecting the histogram below (figure 2) the total sample appears to be divided into three separate groups. 60% of the respondents are at the high end, the search end, of the spectrum. Then there is a group (of 20%) in the middle, who seem to do both and a group of about 20% who are inclined towards quick updates.

Although the interviewees use a mixture search engines and checking out their favourite websites, portals, most prefer to search for information using a search engine.

“I know other people that use portals all the time,--- It’s not the way I like to work because I suspect that, you know, the portal has got their own agenda and someone else is controlling what they’re putting on there. The beauty and the major benefit of the Internet no one’s controlling what you can or cannot put on there. I think for me to use the Internet the key thing is the ability to have a quality search engine to find what I’m looking for.”

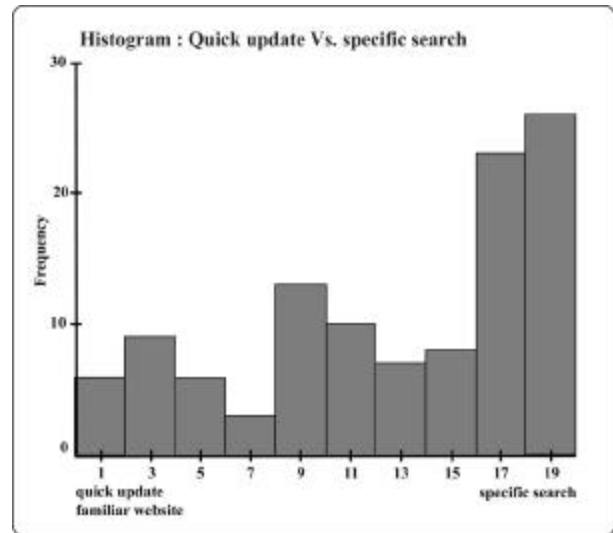


Fig 2: Histogram contrasting searching and updating

This does not take away that people do have favourite sites. The ones that are top of their list are Google, BBC, Amazon, Lycos, their own organisations websites, but one subject characterised it best by entering "Too numerous to mention".

Wild Wild WEB

In this section we detail various aspects of searching the Internet for information on wildlife and conservation issues.

Reasons for starting an Internet search, that relates to conservation or wildlife issues range vastly. It could be something specific like going on or coming back from holidays, local noise pollution, doing a BBC wildlife magazine competition, something heard on the radio or read in a magazine, or it can be inspired by a general interest, wanting to keep up to date with conservation issues. Once on the WEB search results may spark off further, more refined searches.

“--- do a search and see what brings you back and then often based on what I get come back from that search will stimulate the next type of search. It’ll come up with things that I haven’t thought off, that had not occurred to me. --- so, I’ll put it back in, feed it in and kind of refine it. --- Something will occur to me. I see a news item on TV, hear on the radio, or whatever, I need to find out more about that. The Internet is the first place I go.”

The keywords that people enter are usually simple and general, but with the current search engines, they seem

remarkably effective. The keywords can be categorized along the lines of environmental concerns, location, species (names and behaviours) as well as human activity around wildlife issues.

The interview sample judges the Internet, to find information on wildlife and conservation, a *sine qua non*. They cannot think of any other way in which to get the information they want. The sheer amount of non-censored, up to date and detailed information available, coupled to their perception that in the last few years it is easier and quicker to locate the information, make the Internet an awesome source of references. There is, however, a sense of taking the Internet for granted as it has crept into our lives.

“Most of the things which I search for on the Internet I wouldn’t find anywhere else --- I must admit I do take it very much for granted now.”

“It would be so difficult to look for in books. When you go to the Internet it’s there! [snaps fingers vigorously] And they tend to be more detailed and up to date than books. Books usually are twenty years plus. You’re getting information which is literary coming off from people that are writing it and putting it straight on the Internet.”

Again there is a plethora of websites that people use to look for information on wildlife and conservation with BBC wildlife, WWF ranking high as well as a diverse range of wildlife trusts websites.

Much as our interviewees sing the praises of the Internet, they are also very clear, as well as unanimous, about what they find annoying: Advertising, junk email, unsolicited pop-up windows, banner advertising, slow access and difficulty in finding the right information. The computer itself poses problems, the PC-crashes or they have stared too much at the computer at work and do not feel like doing this again at home; and then there is the sterility of the Internet in contrast to the physicality of books.

“The annoying thing about the Internet is that it is so difficult to limit what you’re searching for. You do get fed up of staring at the computer I stare at the computer all day at work anyway and then I come back and I stare at my computer even more.”

Even so, for 36% of people across both samples, looking up information on wildlife and conservation issues is a daily occurrence. A further 25 % do this at least once a week, bringing the total of regular wild-web browsers to 61% of these wild life enthusiasts.

Provided it is relevant material, then printing is an attractive alternative to reading the information off the screen, or so the interview study suggests. It has the advantage of allowing concentrated reading and annotation. For one, anything over half a side A4 is reason to print but another one is happy to glance through “scene setting” text of a

good two sides of A4. However, the questionnaires reveal that wildlife information is not printed out that often. Only 20% of the combined sample does this often whereas the majority (60%) report to seldom print out wildlife information.

The interview study indicated that there were technical difficulties in preserving bookmarks, as well as organising and overseeing a large amount of bookmarks.

“It is difficult to search them. I’m not very good at categorising information. I haven’t got a naturally organised frame of mind. I won’t put the same thing in the same place twice sort of thing. So what I need is something that I can store somewhere which I can then just search on.”

Surprisingly for these using wildlife enthusiasts, on average they report to have very few wildlife bookmarks (favourites).

Although they are critical, our interviewees are not cynical about information on the Internet. Overall people in the interviews judge information on the Internet to be as reliable as in the printed world, i.e. they trust known and respected sites, names, brands, e.g. New Scientist, BBC, Britannica. Although smaller, unknown sites are taken with a pinch of salt, people do not feel particularly worried about them.

“I don’t distrust the Internet anymore than I distrust newspapers or magazines.”

“I would tend to go to reliable websites, you know ones that look professional, or are from a recognised company or brand or what-have-you. --- I suppose on the nature side if you saw someone who had like a, they had set up their lesser spotted Warbler eh web site then I would, I would believe what they said on it, you know. If they said there were unicorns, obviously I start to, --- I tend to believe it all. I mean, you are hardly risking life and limb over it.”

However in the questionnaire study, across both samples, there was a highly significant difference between how much people trust information on the web ($M = 12.3$) and information in books or magazines ($M = 14.4$), resulting in $F_{(1,114)} = 43.3$, $p = .000$. It is not that trust in the web is so much lower, it is more that people consistently rate trust in books higher.

People enjoy the physicality of books. You can touch and smell them. Magazines are easier to browse than websites; you can easily flick through magazines. But it is not just the physicality. Books allow a high degree of mobility, a simple user interface; they provide a sense of depth, which contrasts with the superficiality, the bite sizes, and sterility of the Internet. On the other hand and seemingly in contradiction, the level of detail the Internet provides and its ability to bring things to life, are also mentioned.

“I like books and I still own a lot, despite the fact that the Internet has become so ubiquitous. I don’t think books are

going to go away, because it's a personal thing a tactile experience. You can smell books. Yeah. It's a very rich experience as well. Although digital technology is great, it's quite a sterile experience in that it's a picture on a screen, you don't touch it. And it [books] is easier to use, it's probably got one of the best user interfaces ever designed."

"If I buy a magazine it's usually not because I'm looking for anything specific but when I'm using the Internet it's because I am trying to find something specific, so it's a bit different."

"I think some of the sites bring things alive. They can demonstrate things like that you cannot do in books. And they can show clips. Also they tend to be a lot more detailed. With the Internet you can get specifically what you want, when you want it. If there is things that I want I know it is somewhere on the web, somewhere some anorak has put it there. Whereas with books I would not know where to start."

Below, I present accounts on how the WWF volunteers group use email for their group communications. The WWF group is relatively new, consists of young people and email is crucial in organising the group: passing the minutes of meetings around, checking out new ideas, getting in touch with related conservation groups as well as between individuals. Email seems to be positioned in between asynchronous communication (messaging without instant feedback) and synchronous communications, i.e. frequently checking of email makes quick feedback possible.

"This group here is brilliant because virtually all of them have got email. It is brilliant for keeping in touch, because when you try to organise an event everyone will need to know what is happening. And things change at the last minute, someone cannot do something and something's happened. --- Email has really helped that group because it wouldn't be that good otherwise and it is quite a young group, as you saw, as well, so everyone has grown up with it."

"I've never had a phone call but I've had emails from almost all of them."

Enthusiastic as these accounts are, the questionnaire results pour a bit of a cold shower over the intensity of email use for wildlife purposes. The mean for the group as a whole was low. Having said that, the conservationists (M 8.3) do this significantly more than the general public (M 3.9), $F_{(1,114)} = 14.1, p = .000$.

On average both questionnaire samples make very little use of chat groups (M = 1.5). The interviewees see it as something for a small group of (the same) people, who like to stand on a soapbox. WWF have a discussion space but none of the WWF volunteers use this, they prefer email.

"No, I've had a look at some forum groups and chat rooms. And, I look what's in them and I think, well, there's

not really anything there that I can actually add to. Or, or, be a part of. I find some of it quite flippant. There's a little part of our website is, is a chat room. We don't tend to use that. We just send a, we just email directly. [Chat groups are for] people who actually want to stand on a soapbox and shout."

In general, screensavers and wallpaper are popular with our interviewees. Using wildlife pictures, from the Internet, provides a virtual escape from the work environment.

"Quite often we like to download photographs as a back drop on the PC. Some of those are absolutely awesome so I would look, look to sort of capture those, you know, and download them. I find it relaxing in that it takes you outside of your work environment and so it's like an escape, an escape from work for a second."

The value may be high but the occurrence of downloading photographs, as the questionnaires show, is low. Downloading of video and audio happens even less. However, audio offers some unique advantage:

"I particularly like birds, I would like to know more about the calls and obviously, in there would be excellent way of doing, you can't have it in a book, can you. I would not be able to read the music."

When we compare the downloading of the different media we see interesting differences (figure 3).

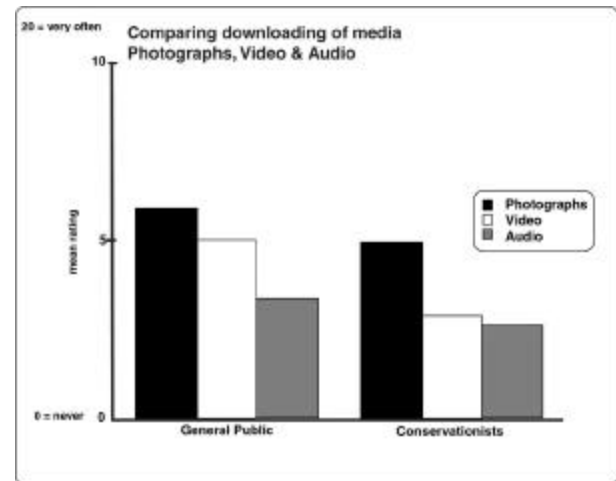


Fig 3: Comparing downloading of media

Even though, as the bar chart shows, downloading of media does not occur often, repeated measures analyses reveals a highly significant media effect (across the media and the two segments), $F_{(2,214)} = 12.6, p = .000$. Paired comparisons show that photographs are downloaded more often than the other media, similarly video is downloaded more than audio. While all the three means, photo, video, audio, for the general public are higher than the conservationists, the only significant difference was found for downloading video $F_{(1,122)} = 4.5, p = .037$.

Advanced Users

So, who are these people that download video and audio, making use of the more advanced features of the Internet? How many of them are there? As ARKive will be offering such advanced features, as video and audio clips, it seems desirable to know a bit more about them. Since most people do not download these media, we decided to use scores of seven and over as a criterion. To reiterate, we asked people how often they download audio or video clips from the Internet, between "Never" (= 0) and "A lot" (= 20). Thus, a score of seven is about a third up the scale.

Below (figure 4) we show the scatter gram of downloading audio vs. downloading video. The plot is divided into four quadrants: bottom left, the people who do not or rarely download video or audio (black boxes), top right the people who often download both (black circles), top left, those who download audio but not video (grey circles) and bottom right, the respondents who download video but not audio (grey boxes).

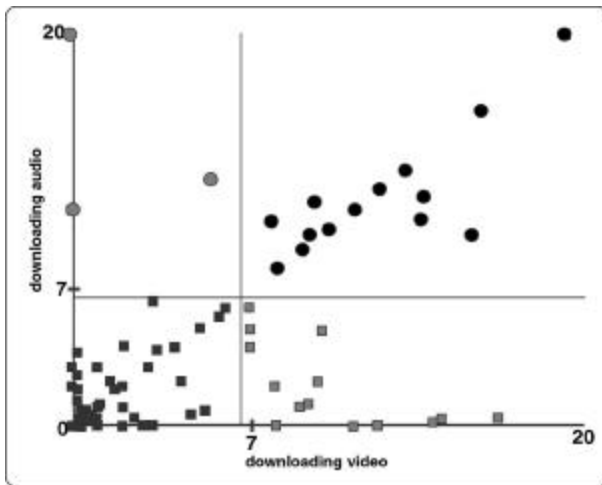


Fig 4: Scatter plot audio vs. video downloading

There are 17 people (14%, the grey and the black circles) who scored seven or higher for downloading audio. This figure was higher for downloading video, 29 people (24.5%, the grey squares and black circles), almost a quarter of the total sample. Thirteen (11%, black circles) do both audio and video downloading. The proportion of video and audio down-loaders was roughly the same in the conservationist and general public samples. However as we showed above, the general public download video more often than conservationists.

The correlation between these two variables, downloading audio and video, was highly significant: $r = .63$, $p = .000$. Not only is this indeed a very strong positive relationship, it is noteworthy how many subjects in the surveys are on, or very close to, the diagonal, running from coordinates (0,0) to (20,20), i.e. they download video and audio in equal measure.

Nine variables proved indicative for video use, i.e. people who download video also significantly support the anti-globalisation movement more, have more years of Internet experience, have a faster connection at home, are more inclined to do specific searches than visit a familiar website, look more often for wildlife information, take part in chat groups more often, are more likely to print out wildlife information, download photographs and of course video more often.

People who download audio also significantly have a faster connection at home, look more often for wildlife information and are more likely to print out wildlife information, download audio more often and make more use of binoculars. The relationship between bird watching and intensive binoculars use is an obvious one and suggests that at least some of the audio down loaders might be "twitchers" (bird-watchers).

DISCUSSION

Hewlett Packard has an interest in Internet based multimedia publishing. ARKive is a publicly funded innovative digital library of information on endangered species and has an accompanying website. Being Bristol based, this offered the unique opportunity for HP labs Bristol to study a complete digital publication process and work on technology development specific to this area. A set of tools has been developed by a dedicated HP labs team to support this online publishing process and, as part of our traditional approach, user studies have been carried out to inform and support this technology development. In addition to implications for the actual ARKive project the current studies are a good example of how motivated hobbyists use the Internet to support their interest.

ARKive is targeted at three user groups: people in education and research; professional image and media researchers and; the broad audience of wildlife enthusiasts. The education and research aspects have been well researched [1,2,3], we also have a good idea how media researchers use the Internet (HP labs internal report) but there was little understanding of who else would use the site, in particular those organisations and individuals with a deep concern about the environment.

In order to profile this potentially large user group, we conducted an interview and two questionnaire studies. One questionnaire study targeted people in conservation societies (some paid, some volunteers, some full time, some part-time) and the other the more general public with a keen interest in wildlife and conservation issues. We knew something about the latter group through a readers' survey in the BBC Wildlife Magazine. Their readers are typically married with kids and are genuinely concerned about environmental issues and wildlife. And, although typically they spend over two hours reading a copy of BBC wildlife, belong to conservation or environmental organisations and are avid watchers of nature programs on TV, they typically

are not activist or even active members. We wanted to investigate if there are other large groupings of people with an interest in wildlife and conservation issues that differ considerably from the average BBC wildlife magazine reader. In addition, since Internet use takes place in the wider contexts of people's lives and interests we were interested if variables that had very little to do with technology use were indicative for, or somehow related to, their Internet use.

We found differences as well as communalities between the conservationists and general public wildlife enthusiasts. In addition a quarter of the sample as a whole are advanced Internet users who download photographs, video and to a lesser extent audio clips from the Internet.

They overlap in the sense that they are all passionate about wildlife and conservation issues. Outdoor pursuits are popular, in particular walking. They are avid readers of wildlife or conservation magazines of which BBC wildlife magazine was a clear winner. There is an unrivalled high support for the World Wildlife Fund and above average support for organisations like Friends of the Earth and Greenpeace. The use of email still outweighs the amount of browsing as has been reported several years ago [5]. Browsing for most people is a very individual activity. Work is still the main place to access Internet but 90% of the conservationists and 72% of the general public also have Internet at home. Libraries and Internet cafes are used far less. People by and large have a good connection to the Internet at home. Some people have a familiar website that they use for quick updates but most find information through specific searches. The keywords that people enter are usually simple and general, but with the current search engines, they seem remarkably effective. The sheer amount of non-censored, up to date and detailed information available, coupled to the perception that in the last few years it is easier and quicker to locate the information, make the Internet an awesome source of references. There is, however, a sense of taking the Internet for granted as it has crept into our lives. It seems that Internet pages have become highly standardized. The type of website people expect is best exemplified by the BBC site, similar to newspapers' lay-out, it allows users to scan headlines, glance through summary paragraph and then do more in depth reading if needed.

Annoying features of the Internet include: Advertising, slow access, difficulty in finding the right information, and the sterility of the Internet. For a third, looking up information on wildlife and conservation issues is a daily occurrence. A further 25 % do this at least once a week bringing the total of regular wild-web browsers to 61% of the sample.

Provided it is relevant material then printing is an attractive alternative to reading the information off the screen, allowing concentrated reading and annotation. However, wildlife information is not printed out that often, only 20%

do this regularly. Surprisingly for these Internet using wildlife enthusiasts, on average they report to have very few wildlife bookmarks (favourites).

Although they are critical, people are not cynical about information on the Internet. They trust known and respected sites, names and brands. Smaller, unknown sites are taken with a pinch of salt, but people do not feel particularly worried about them. Trust in the web is high but people consistently rate trust in books higher. People enjoy the physicality of books. Books also allow a high degree of mobility, a simple user interface; they provide a sense of depth, which contrasts with the superficiality, the bite sizes, and sterility of the Internet.

Most people are hesitant about partaking in forums or chat groups. It is seen as something for a small group of people, who like to stand on a soapbox. People prefer email.

Downloading wildlife pictures, from the Internet, provides a virtual escape from the work environment. However the occurrence of downloading photographs is low. Downloading of video and audio happens even less. Even though, downloading of media does not occur often, photographs are downloaded more often than the other media, and video is downloaded more than audio.

In the UK alone there are a great many people active in a great many environmental and conservation societies, suggesting that there is potential for a large audience for ARKive of conservationists. In addition, the sizeable readership of the BBC wildlife magazine points to another potential large audience for ARKive, the wildlife enthusiasts. And indeed we can think of our combined sample as an Internet savvy version of the BBC wildlife magazine readers. Moreover there are so many communalities between these two segments that we could easily group these two segments together leading to a truly enormous ARKive audience worldwide. Most of this audience will come to ARKive via search engines and so they are likely to have specific queries as a reason for visiting. Judging by the data of the current studies, we could speculate that about 20% of the visitors could have ARKive as a book-marked (favourite) site, which they would use for regular updates, maybe feeling part of an ARKive community.

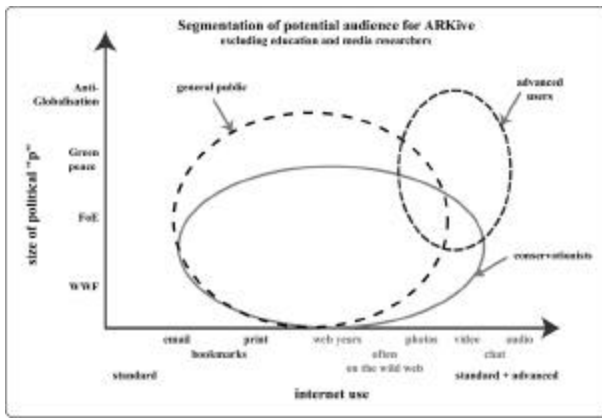


Fig 5: Segmentation of potential ARKive audience

Although there is much overlap between the conservationists and the general public wildlife enthusiasts, there could be some benefit in understanding where these two groups differ. The diagram above (figure 5) depicts the two overlapping segments (conservationists lying down grey oval, general public oval with broken line) as well as a group of advanced users (standing up oval, top right) making up about a quarter of the combined sample. By and large the differences between the segments relate to how the Internet is used, along the X-axis from simple to more advanced use, and the size of their political “p”, to be more precise what sort of movements they support, along the Y-axis.

The older and male dominated sample of conservationists are even more passionate about conservation issues as well as more active in their organisations than the general public. The general public is less against the anti-globalisation movement than the conservationists, hence the general public oval being higher (up the Y-axis). Conservationists have used the Internet longer and also use (wildlife related) email more than the general public, which is why we have shown the conservationists stretching a bit further along X-axis towards the more advanced use of Internet. However, the people who make the most advanced use of the Internet, in particular down-loading video, stem more from the general public wildlife enthusiasts than from the conservationists, which is why they are depicted as a separate group (with a broken line to signify them being closer to the general public). This group of video loaders (a quarter of the combined sample) has a faster Internet connection at home. They look for wildlife information more often and are much more likely to print out wildlife information from the web. The people who download video also have a less negative attitude towards the anti-globalisation movement than the “rest”. They seem to be much more Internet experienced, are more likely to use chat groups, download photographs and they are more likely to

use search engines. The smaller group (14%) of people who download audio make more use of binoculars and this suggests that at least some of the audio down loaders might have a keen interest in bird watching.

As ARKive will be featuring video and audio clips, it seems desirable to know who would be using these. Our investigation suggests that these people are more likely to come from the general public than from the conservationists, are more likely to be a bit more progressive and make more advanced use of the Internet, including taking part in Internet discussion forums. We speculate that about a quarter of the future visitors of the ARKive site will make use of their more advanced features.

On a methodological note, the questionnaire results have complemented and occasionally put a cold shower over the results of the interviews. Within the HCI community we seldom find this crosschecking of qualitative and quantitative data. There is a risk that a catchy quote might actually not be too representative. In addition, finding out about the general context in which Internet use takes place is valuable, whether that is the size of their political “p” or binocular use.

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