

JOINT REPORT of

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Case against: John Doe



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Summary

The computer at the suspect's home was seized and after an investigation was found to contain illicit images of an ornithological nature. Malware was found to have infected the suspect's hard drive but that did not sufficiently explain the illicit materials found on the drive. The suspect was also found to be communicating through email with someone named Ben Forbes. They also received an email from mailinglist@bird.example.com with a guide on "How to Identify Birds". Found on the disk was also two word documents which contained information on "Enjoying Your First Birding Field Trips" and "Birdwatching in Thailand". There were also three pdfs found which contain an issue of "Bird Guides of Western Australia", "University of California Newsletter" on ornithology and "The Porter County Birding Guide". The suspect's internet history also found that they were consistently searching for bird related topics and visiting bird related websites. There was also a folder found on the disk, "aa010703a_files", which contained files for a bird watching/birding site. Found was also a .wav file, "aggressive_song.wav" which contained the audio of a bird song

Section 1 - Description of Crime

Incident 1 – 2004/06/09 – 2004/06/27

Found on PC1 throughout were 56 photos taken on a Canon PowerShot SD100 camera. Of these 15 IIOB. They were all taken between 2004/06/09 18:02:28 – 2004/06/27 17:28:32. Created on the PC1 between 2005-02-03 15:03:56 GMT and 15:06:42 GMT. Found throughout the drive, 4 were found on user johnDoe and 11 were found in unallocated space. The images can be found as 1-15 in Appendix A.

Incident 2 - 2005/02/02

Found on PC1 was a plain text document, nextboxtips.txt. As the name of the file suggests it contains tips for creating nest boxes. The file was created on PC1 on the 2005/02/02 at 14:29:30 GMT.

Found on PC1 was also aggressive_song.wav which contains audio of a bird song. The file was created on the PC from a USB Pen drive on 2005/02/09 at 12:23:00 GMT.

Incident 3 – 2005/02/03 Images

Throughout PC1 another 51 miscellaneous bird images were found. An image which was hidden as a .exe file was created on 2005/02/03 at 14:40:40 GMT. The image can be found in Appendix A as image 74. Found was also image 3, this image was found amongst user bob's files. Found on PC1's was an IIOB image, the image was taken by a Canon EOS-1DS on 2003/01/29 at 16:14:10 GMT and put on the disk on 2005/02/03 at 11:42:19. The image was found on the unallocated space of the PC1 disk. The image can be found as image 23 in Appendix A.

Images were also found inside a .jar file encrypted by GNU Privacy Guard. Inside the .jar file 5 IIOB were found and can be found as images 69-73. The encrypted file was created on PC1 on 2005/02/03 at 16:46:31 GMT.

Incident 4 – 2005/02/03 Documents

Found on PC1 was also a number of word documents containing references to birdwatching. Birdwatching.doc is one of these, authored by Bruce Rogers it contains a guide to a "Birdwatcher's Trip to Thailand". The file was first put on PC1 on 2005/02/03 at 15:49:19 GMT. It was then later accessed at 2005/02/03 15:49:27 GMT. Full file can be found in Appendix B.

Another word document found on PC1 was guide.doc, the file was created by Paul Teddy however the text inside the file references Pete Dunne as the author. The file contains "An Insider Guide to Enjoying Your First Birding Field Trip". According to the metadata the file was last saved 2002/09/15 at 20:17:00. The file was first placed on the hard drive on 2005/02/03 at 15:44:05 GMT. It was also accessed at the same time on 2005/02/03 at 15:44:05 GMT.

Incident 5 - Internet History

The internet history of John Doe on Internet Explorer and Mozilla Firefox was found on PC1. The entirety of which can be found in Appendix D. As well as providing information on John Doe accessing files in the browser it also provides John Doe's browser searches. Contained in the Mozilla Firefox history were 8 google searches for bird related content including "young chicks" and "bird mating calls". The Mozilla Firefox history is for 2005/01/24 – 2005/02/03.

Found on PC1 was also the Inbox files to John Doe's Mozilla Thunderbird. Inside the Mailbox is one email from Bird Fanciers, mailinglist@birds.example.com. The email which subject is named "How to Identify Bird" and provides a guide to identifying birds in the body of the text. This email was sent on 2004/10/16 at 14:20. Also in the mailbox are three emails from Ben Forbes (ben@example.org). The second one entitled "good pics" contains three IIOB, images 16-18 in appendix A. The third email contains the text "Thanks for the pics you sent me here are some I really like", attached are then five more IIOB, images 19-22 and 17 in Appendix A, image 19 was taken by a Sony Cybershot Camera on 2002-12-30 at 12:28:49 GMT. The sent dates of these two emails from Ben Forbes are 2005/02/08 at 14:13 and 14:35 respectively. Full emails can be found in Appendix C.

Incident 6 - PDFs

Found on PC1 was also multiple .pdf files. Full files can be found in Appendix B. File f0180344.pdf contains a guide to birdwatching in Perth, Australia. Created on 2001/12/16 at 14:11:18. The files contained no data on when it was accessed. Another pdf file was f0273688.pdf which contains a newsletter published by the University of California, discussing the birds found at the Botanical Garden in Berkeley, California. The file was created on 2001/09/12 at 11:42:31 GMT. The other bird related pdf found on PC1 was f0327896.pdf which contains "The Porter County Birding Guide" which was created on 2004/03/24 at 09:05:18 GMT.

2 - Description of Investigation

2.1 - Job Description and Instructions

We were summoned to the home of John Doe by Dr R.I Ferguson where we seized any computer equipment. We were asked to investigate John Doe's Personal Computer and find evidence of any illicit activity. It was suspected prior that John Doe's PC contained illicit material of an ornithological nature.

Both digital forensics analysts are 2nd year Ethical Hacking students at Abertay University. The course contains a module, Digital Forensics, which teaches the skills and tools necessary to carry out a digital forensics' investigation.

2.2 - Description of Recovered Items

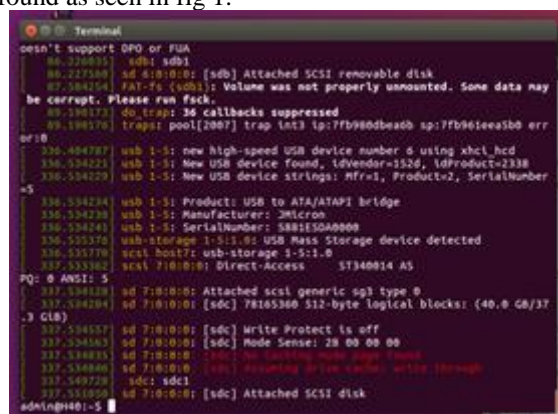
Only one item was seized for digital forensic from the crime analysis which was a single desktop computer, possibly owned by John Doe. From this desktop a standard 3.5" hard disk drive was recovered for analysis. The HDD had 2.962GB worth of data on it which was used in the investigation.

From the HDD several material types were found either of a direct ornithological nature or relating to birds. Multiple images, word documents and emails were found on John Doe's account on the computer. The account under the name "Bob" on the computer was also found to be holding materials of an ornithological nature.

2.3 - Methodology

2.3.1 - Data Recovery

To be able to analyse and use any data found on the disk the data needed to be copied from the drive and onto a computer. This was achieved by first using a SATA to USB data cable and attaching the drive to the computer. After attaching the drives assigned name needs to be found, so by using the dmesg this name can be found as seen in fig 1.



```
Terminal
doesn't support OPO or FUA
86.226951 sd 4:0:0:0 [sd] Attached SCSI removable disk
86.227348 sd 4:0:0:0 [sd] Attached SCSI removable disk
87.284254 FAT-Fs (sdb): Volume was not properly unmounted. Some data may
be corrupt. Please run fsck.
89.286123 00: trap: 38 callbacks suppressed
89.398176 traps: pool[2007] trap int3 ip:7fb980b0a6b sp:7fb961ee05b0 err
or 0
336.404787 usb 1-5: new high-speed USB device number 6 using xhci_hcd
336.534221 usb 1-5: New USB device found, idVendor=152d, idProduct=2238
336.534129 usb 1-5: New USB device strings: Mfr=1, Product=2, SerialNumber
=5
336.534234 usb 1-5: Product: USB to ATA/ATAPI bridge
336.534238 usb 1-5: Manufacturer: JMicron
336.534241 usb 1-5: SerialNumber: SB81E50A0000
336.535376 usb-storage 1-5:1:0: USB Mass Storage device detected
336.535776 scsi host7: usb-storage 1-5:1:0
337.533362 scsi 7:0:0:0: Direct-Access ST340014 AS
PQ: 0 ANSI: 5
337.534128 sd 7:0:0:0: Attached scsi generic sg1 type 0
337.534284 sd 7:0:0:0: [sd] 7816380 512-byte logical blocks: (40.0 GB/37
.3 GiB)
337.534537 sd 7:0:0:0: [sd] Write Protect is off
337.534543 sd 7:0:0:0: [sd] Mode Sense: 28 00 00 00
337.534840 sd 7:0:0:0: [sd] No backing store page (read)
337.534840 sd 7:0:0:0: [sd] Assuming drive cache: write through
337.549728 sd: sd1
337.551050 sd 7:0:0:0: [sd] Attached SCSI disk
adm@h401:~$
```

Fig 1 dmesg command output

After finding its assigned name an md5 hash of the data on the disk can be taken and written to the local machine by using the dcflddd command, this can be seen in fig 2. This command creates 2 documents (as seen in fig 3) a .dd file and an .md5 file, the .dd file holds all the actual data from the file

while the .md5 file holds the checksum for the file. The checksum is needed to check the integrity of the files to make sure there's no corruption.

```
admin@H47:~/Desktop$ sudo dcfldd if=/dev/sdb of=/home/admin/Desktop/jd/johnDoe.dd conv=notrunc,noerror,sync hash=md5 hashlog=/home/admin/Desktop/jd/johnDoeDrive.md5 bs=1486916 count=4896
[sudo] password for admin:
4896 blocks (5495mb) written.
```

Fig 2 dcfldd command

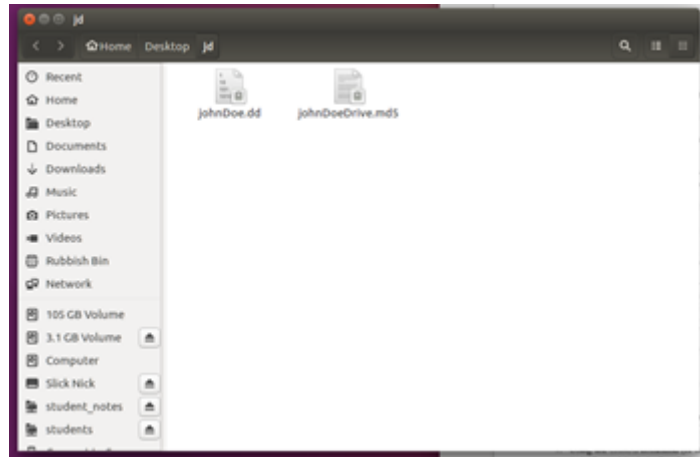


Fig 3 documents produced

To find more information about the disk itself the two commands fdisk and mmls were used to show the partitioning on the disk.

```
admin@H47:~/Desktop/jd$ fdisk johnDoe.dd
Welcome to fdisk (util-linux 2.27.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.
Partition to use for read-only mode:

Command (n for help): f

Unpartitioned space johnDoe.dd: 0 B, 0 bytes, 0 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
Command (n for help):
```

Fig 4 using the fdisk command to find the unpartitioned space on the disk

```
Command (n for help): p
Disk johnDoe.dd: 5.4 GiB, 5762727936 bytes, 11255328 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x01441460
```

Fig 5 fdisk partition table

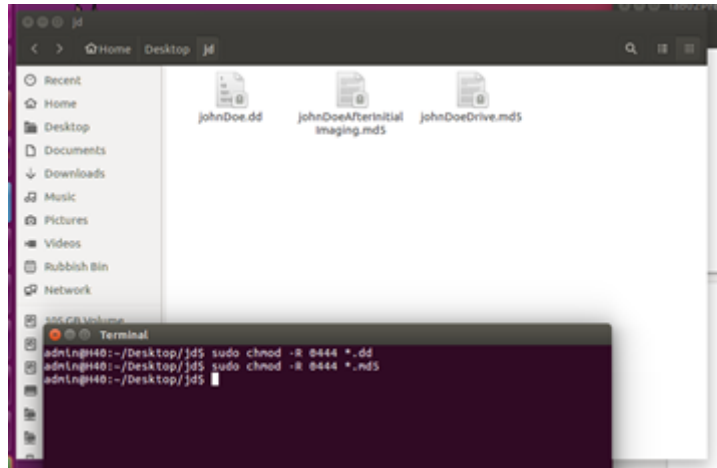


Fig 6 Changing the files to read only

Finally before this stage can be finished the checksum needs to be checked to make sure the file isn't corrupted. This can be done by using md5sum on the johnDoe.dd file to create another md5 hash and then compare the new hash with the original one, if they are the same the document isn't corrupted. These steps can be seen in figs 7 and fig 8.



Fig 7 Creating the checksum



Fig 8 comparing the checksums

2.3.2 -Virus Scan

First it was necessary to run a virus scan on the suspect's drive to confirm that any illicit images found on PC1 were not caused by malware/a virus. To do this the johnDoe.dd file was mounted on a PC running Ubuntu with the commands "losetup -o 32256 /dev/loop0 /home/admin/Desktop/jd/johnDoe.dd" and "mount -o ro -t ntfs /dev/loop0 /mnt/suspectDrive."

The command "freshclam" was used to update the virus signatures. Once that was done a terminal was opened in /mnt/suspectDrive and the command "clamscan -r --bell --infected" which would scan recursively for any malware. As can be seen in fig 9 ClamAV there was three infected files.

```

rankin@Ubuntu-Aspire-F5-573G:/mnt/suspectDrive$ clamscan -r --bell --infected
/mnt/suspectDrive/Program Files/Real/RealPlayer/realplay.exe: Win.Malware.Zhkiq-6915483-0 FOUND
/mnt/suspectDrive/Program Files/Real/RealPlayer/rjbres.dll: Win.Malware.Zhkiq-6915483-0 FOUND
/mnt/suspectDrive/Program Files/Real/RealPlayer/rplugins/rjmisc.dll: Win.Malware.Zhkiq-6915483-0 FOUND

----- SCAN SUMMARY -----
Known viruses: 6108122
Engine version: 0.100.3
Scanned directories: 1431
Scanned files: 15666
Infected files: 3
Data scanned: 2714.36 MB
Data read: 2926.50 MB (ratio 0.93:1)
Time: 1268.090 sec (21 m 8 s)
rankin@Ubuntu-Aspire-F5-573G:/mnt/suspectDrive$ █

```

Fig 9 ClamAV results

The results prove that there is malware on PC1. The malware itself however is not linked, amongst other things found on PC1, to downloading IIOB or for consistently searching for bird related topics.

2.3.3 - Camera Pictures

One clue which was given was the fact that John Doe had a Canon PowerShot camera. With this info the computer can be searched for specifically this brand of camera as the meta data in pictures stores data of this nature. This was done by first using the foremost program to search through the johndoe.dd file and find all of the .jpg files, the program then places all the results of this search in a file. As seen in fig 10.

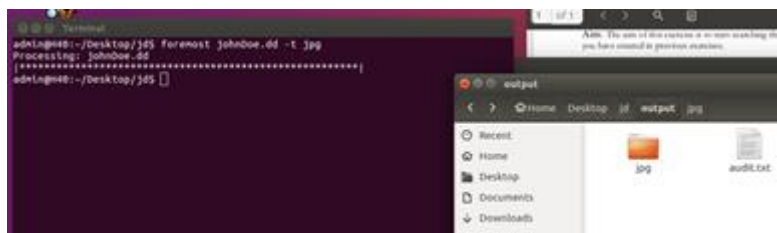


Fig 10 using foremost on johndoe.dd

This file can then be searched through by metacam which is another program which can show EXIF/TIFF data of an image. With the command: “metacam output/jpg/*.jpg > data.txt” it’ll go through all of the .jpg images and export the EXIF/TIFF data into a .txt document. As can be seen in fig 11.

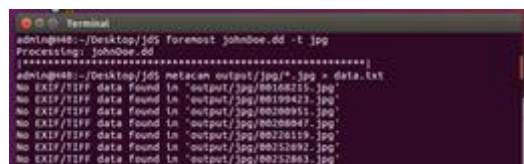


Fig 11 using metacam and outputting results to a .txt file

From here the .txt file was searched through to find all of the pictures which were taken by a Canon Powershot camera.

2.3.4 - Whitelisting

To save time in the investigation the next move was to create a whitelist so that files and documents which aren’t in a basic install of windows XP can be found easily. To do this an image of a normal install of Windows XP is needed which was got from the student_notes section of the Abertay server.


```

Terminal
admin@1940:/mnt/suspectDrive$ cp /media/student_notes/2016-17/forensics/handouts/winXP.dd /home/admin/Desktop
admin@1940:/mnt/suspectDrive$

```

Fig 12 copying files from server

Two .dd files cannot be directly compared so first the johnDoe.dd file needs to be mounted onto the computer. Then with md5deep a .txt can be created which lists every file and document in the filesystem, as seen in fig 13.

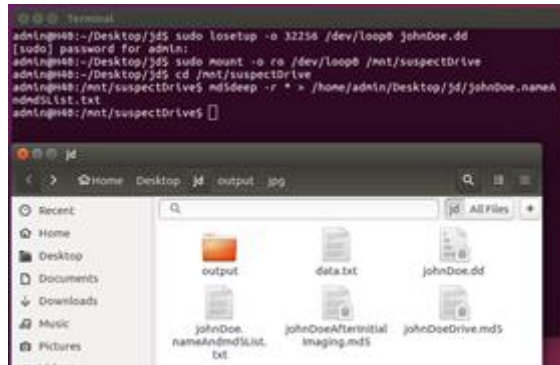


Fig 13 creating johndoe.nameAndmd5List.txt

The same process is repeated for the winXP.dd file and this leaves two .txt files (fig 14). The whitelist only needs to store hashes however so but using the command in fig 15 all the paths/ filenames are removed and a new .txt has been created.

```

Terminal
admin@1940:/mnt/suspectDrive$ cd ~/Desktop
admin@1940:~/Desktop$ sudo umount /mnt/suspectDrive
admin@1940:~/Desktop$ sudo losetup -d /dev/loop0
admin@1940:~/Desktop$ sudo losetup -o 32256 /dev/loop0 winXP.dd
admin@1940:~/Desktop$ sudo mount -o ro /dev/loop0 /mnt/suspectDrive
admin@1940:~/Desktop$ cd /mnt/suspectDrive
bash: cd: /mnt/suspectDrive: No such file or directory
admin@1940:~/Desktop$ cd /mnt/suspectDrive
admin@1940:/mnt/suspectDrive$ md5deep -r * > /home/admin/Desktop/jd/winXPmd5.txt
admin@1940:/mnt/suspectDrive$

```

Fig 14 creating the winXPmd5.txt

```

Terminal
admin@1940:~/Desktop/jd$ cut -f 1 -d " " winXP.nameAndmd5List.txt > winXP.md5List.txt
admin@1940:~/Desktop/jd$

```

Fig 15 cutting the information to create the whitelist

The file winXP.md5List.txt is the whitelist which can be used to filter results. With this two document types were singled out as good candidates for searching for; .jpg and .doc. This was because .jpg was a likely file format to store any pictures so it could easily reveal some illicit pictures, and .doc as John Doe could've stored some information or more pictures in word files. The two commands used to search for these can be seen in fig 16.

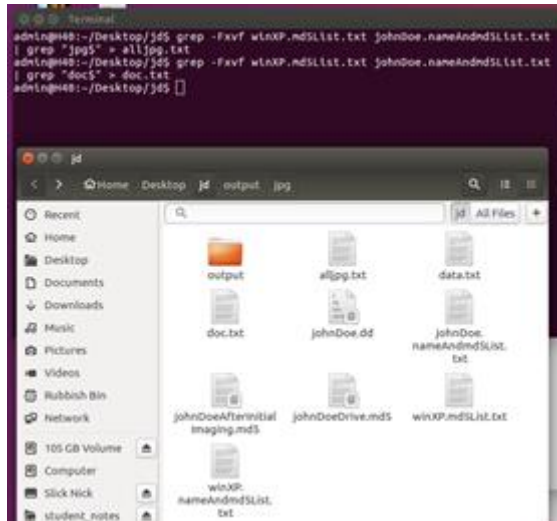


Fig 16 shows the two commands and the documents they created

2.3.5 - Registry Analysis

To analyse the registry first the registry files, need to be retrieved. After the johnDoe.dd file was mounted again the files can be copied easily from the filesystem. As seen in fig 17.

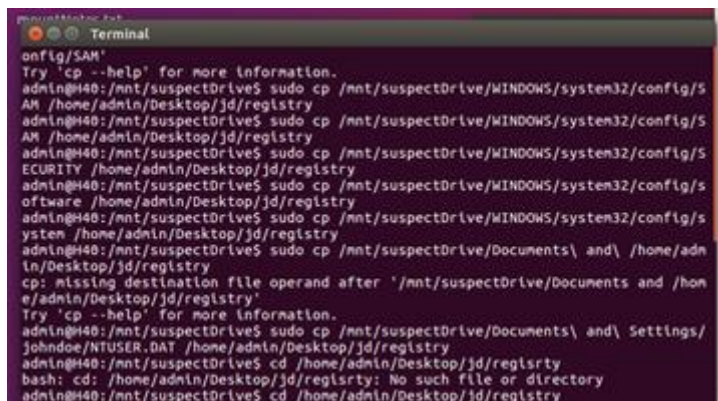


Fig 17 copying registry files from server

After the files had been retrieved they can be loaded in regviewer to be manually inspected (as seen in fig 18). Here the interesting parts of John Doe’s registry can be viewed. The first thing found was that it isn’t just John Doe with an account on the computer but two other people also have accounts (see fig 19).

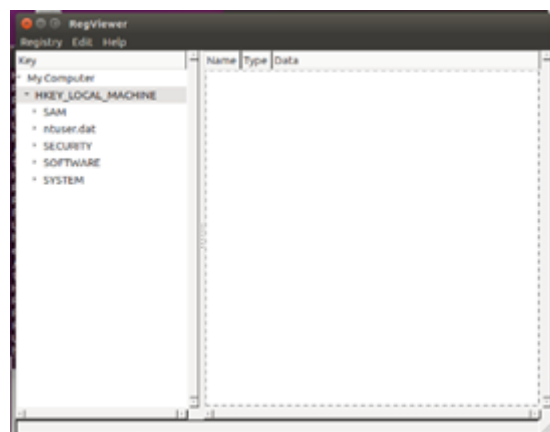


Fig 18 loaded files in regviewer

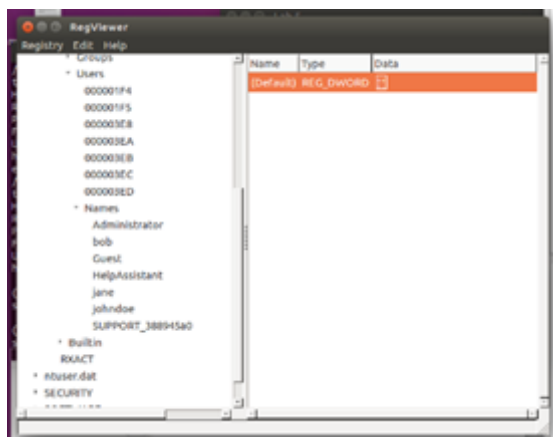


Fig 19 all users on the computer

2.3.6 - Internet activities

Next was to examine what John Doe and the other people on the computer had been looking at on the internet. There are two resources which can be accessed to reveal what sort of sites they had been looking at which are the history and cache files of the browsers. So starting with John Doe's account, then searching through Bob's and Janes accounts the cache and history documents for both Firefox and the IE browsers were analysed. A special program called Pasco was needed to read the IE cache files.

For John Doe's Internet Explorer and Mozilla Firefox history the program WebHistorian by Mandiant was used to output the information into a formatted excel file. This was done by installing and running WebHistorian and then importing every relevant internet browser file from PC1. The information this program produced can be found in Appendix E.

2.3.7 - Autopsy

Autopsy was used to try and find any files which were missed out by any of the previous investigation attempts. It revealed multiple files which were unknown until johndoe.dd was loaded. It was able to find multiple pictures which were hidden on the unallocated space on the disk along with some PDFs.

2.3.8 – Crypto

Found on PC1 was the file birdpics.gpg. This is a file that was encrypted using GNU Privacy Guard, due to the name it was suspected that it contained IIOB. The password to the encryption was not known and thus it had to be brute-forced. The first step was to export all the necessary files from PC1 such as secring.gpg and birdpics.gpg. The files were then copied to a computer running Linux where John the Ripper's command "gpg2john" was used to convert the secring.gpg to a file John the Ripper can use. The secring.gpg contains the key which is used to decrypt the birdpics.gpg. After gpg2john converted the file to a .jtr it was then brute forced using "john secring.jtr", it took a few minutes but the password was cracked as can be seen in fig 20.

```

root@kali: ~/Desktop
File Edit View Search Terminal Help
root@kali:~# gpg2john secring.gpg > secring.jtr
File secring.gpg
secring.gpg: No such file or directory!
root@kali:~# gpg2john Desktop/secring.gpg > secring.jtr
File Desktop/secring.gpg
root@kali:~# gpg2john Desktop/secring.gpg > Desktop/secring.jtr
File Desktop/secring.gpg
root@kali:~# john secring.jtr
Using default input encoding: UTF-8
Loaded 1 password hash (gpg, OpenPGP / GnuPG Secret Key [32/64])
Cost 1 (s2k-count) is 65936 for all loaded hashes
Cost 2 (hash algorithm [1:MD5 2:SHA1 3:RIPEMD160 8:SHA256 9:SHA384 10:SHA512 11:SHA224]) is 2 for all loaded hashes
Cost 3 (cipher algorithm [1:IDEA 2:3DES 3:CAST5 4:Blowfish 7:AE5128 8:AE5192 9:AE5256 10:Twofish 11:Camellia128 12:Camellia192 13:Camellia256]) is 3 for all loaded hashes
Will run 16 OpenMP threads
Proceeding with single, rules:Wordlist
Press 'q' or Ctrl-C to abort, almost any other key for status
Warning: Only 6 candidates buffered for the current salt, minimum 16
needed for performance.
Almost done: Processing the remaining buffered candidate passwords, if any
Warning: Only 1 candidates buffered for the current salt, minimum 16
needed for performance.
Proceeding with wordlist:/usr/share/john/password.lst, rules:Wordlist
Proceeding with incremental:ASCII
arran
(johndoe)
lg 0:00:00:02 DONE 3/3 (2019-04-10 20:22) 0.4273g/s 173239p/s 173239c/s 173239c/s minpe..shs25
Use the "--show" option to display all of the cracked passwords reliably
Session completed

```

fig 20 John The Ripper cracking the password to secring.gpg

Once the password was cracked secring.gpg was imported where it then asked for the password where “arran” was entered. The birdpics.gpg was then decrypted using “gpg -d birdpics.gpg > birdpics.dat” which decrypts the file and puts it into the birdpics.dat file. The .dat file was then converted to .jar file using “mv birdpics.dat birdpics.jar”. The files were then extracted. This can be seen in fig 21.

```

root@kali:~/Desktop# gpg --import secring.gpg
gpg: /root/.gnupg/trustdb.gpg: trustdb created
gpg: key 595A1BDD81D70130: public key "johndoe <johndoe@example.com>" imported
gpg: key 595A1BDD81D70130: secret key imported
gpg: Total number processed: 1
gpg:   imported: 1
gpg:   secret keys read: 1
gpg:   secret keys imported: 1
root@kali:~/Desktop# gpg -d birdpics.gpg > birdpics.dat
gpg: encrypted with 1792-bit ELG key, ID 00061728D3A19CCC, created 2005-02-02
"johndoe <johndoe@example.com>"
root@kali:~/Desktop# file birdpics.dat
birdpics.dat: Zip archive data, at least v7[0x00] to extract
root@kali:~/Desktop# mv birdpics.dat birdpics.zip
root@kali:~/Desktop#

```

fig 21 Decrypting the birdpics.gpg file

2.4 - Analysis

Starting information

The drive which was recovered from the scene was extracted from a computer owned by John Doe. After mounting and getting information from this drive it was found to have one partition amounting to a total storage space of 5.4GB. However only 2.962GB is used for the bootable section of the drive which is where the OS is located, the rest of the HDD (2.441GB) is left unallocated. It was also determined that the OS that was being used was Windows XP Service pack 3.

It was found out that John Doe wasn't the only user on the computer, two other users were also found alongside John Doe's account and the basic accounts (Guest, Administrator). These were called “Bob” and “Jane”, these are presumed to be different people and not just other accounts for John Doe.

A virus scan was performed by ClamAV and the filesystem was found to be holding 3 malware files but they were all the same type. This could explain why the computer is holding illicit images (hackers could be using it as online storage) it doesn't explain the pictures taken before the computer was first used.

Images

John Doe's HDD was found to be holding many images relating to bird abuse not only on John Doe's account but also on the account under the name “Bob”. In total there are 73 different pictures (as seen in appendix A) that were found on the computer and while they're all images of birds they aren't all from the same place. 52 of them when found had EIFF/TIFF data on them saying they were taken by a Canon PowerShot camera, however it cannot be confirmed that John Doe actually produced these images himself as they could've easily been downloaded off the internet.

Some images of note are the ones that were encrypted in a birdpics.gpg file which was found by Autopsy. This file is of particular interest because it shows that John Doe not only had illicit photos of birds but also made an active attempt to hide these photos through encryption.

Documents

The drive also had various documents talking about birds and bird watching. The first document in Appendix B is called birdwatching.doc and it is a word document talking about birdwatching in Thailand. The document goes into great detail about the best places to watch bird, how to identify different bird species, the best time to see birds and various birdwatching tips. The document ends with contact information for people involved with Thailand wildlife protection.

The next document which is called stuf.doc seems to be a letter only addressed to “Sir” from John Doe. The document is only text saying that John Doe is confirming that everything they had discussed had been done. Apart from the text and the date no more useful information can be gathered from this. The final .doc file talks about how to enjoy “your first birding field trip”. It tells the reader about 10 rules to follow to have a good time on a bird watching trip. This document is not address to John Doe but would’ve been downloaded from the internet or transferred by alternative methods as its creator Peter Dunne is not a local user.

E-mails

While never sending e-mails the computer did have record of three different e-mails which had been received by the Mozilla Thunderbird client. First e-mail (see appendix C - good pics) which is an e-mail from a ben@example.org to jdoe@example.com says that John Doe would like the pictures attached. The images attached are three images of an ornithological nature, these images can be seen in appendix A images 16-18.

The second e-mail titled “How to Identify Birds” is from mailinglist@birds.example.com, which is clearly an automated mailing list for bird watching enthusiasts. The contents of the e-mail talks about how to start to identify birds easily.

The third e-mail titled “some more good ones” is another e-mail from ben@example.org. The contents of this email is Ben stating how he enjoyed the pictures John sent him and Ben in return has sent 5 pictures back to John (see images 17, 19-22 in appendix A). This heavily suggests that John Doe has distributed illicit images of birds through e-mail, however there is no hard evidence of this.

The last email is an e-mail from ben@example.org with the subject of “expensive birds”. It is just a long joke about someone mistakenly eating a parrot as the person didn’t realise it was meant to be a pet.

Webpage

A file called aa010703a.htm was found in the My Documents section of John Doe’s account on the computer. It is a page of a website (see appendix E) while this wouldn’t usually odd in the same directory where that file is found there is another file called aa010703a_files. This folder contains multiple files and folders which hold the rest of the code and assets for the webpage. While it is not clear if John Doe had launched this site before it is clear that with John Doe could have had the intentions to launch this site which was themed around birds.

2.5 - Production list and associated description

2.5.1 - Images

Images have been found to be of an ornithological nature so have been produced for the case. See appendix A.

2.5.2 – Documents

Multiple documents have been found to be either directly referencing for talking about birdwatching so they have been produced for the case. See appendix B.

2.5.3 – Emails

Multiple E-mails have been found holding illicit images of birds so they have been produced for the case. See appendix C.

2.5.4 – Browser history

The browser history for John Doe and show multiple cases of John Doe visiting sites of an ornithological nature, therefore has been produced for the case. See appendix D.

2.5.5 – Webpage

A webpage directory was found referencing activities of an ornithological nature, therefore has been produced for the case. See appendix E.

3 - Conclusions

In conclusion, there were 74 amount of bird related files on the suspect's hard drive. Several files were found on the part of the hard drive belonging to the user johndoe. However, 1 image was also found amongst user bob's files. Many images were also found throughout the unallocated area of the hard drive. There was 15 images that had been taken by a Canon PowerShot SD100 camera, 1 image was taken by a Canon EOS-1DS camera and 1 image was taken by a Sony Cybershot.

Found in the history files of Mozilla Firefox was also numerous searches for bird related topics. Examining the suspect's inbox files also found that they had received an email from what appeared to be a mailing list about ornithology. The inbox also showed that they had received multiple emails from Ben Forbes, 2 of which contained attachments that were IIOB. One email received implied that Ben Forbes had received IIOB from John Doe.

The malware scan conducted on a copy of PC1 resulted in three files being positive for malware. The malware found is not linked to downloading IIOB or searching for IIOB on a victim's PCs. The fact that on PC1 there was also an encrypted .zip file containing IIOB which had been encrypted by a program that had been searched for in John Doe's history suggests that John Doe had put in time and effort to hide these IIOB.

4 - Equipment Required for Court Proceedings

Only one item was recovered for the investigation which was:

- A hard disk drive (HDD)

For investigation a single Linux workstation was used which was outfitted with multiple forensic tools, these are:

- Linux Ubuntu OS, needed for mounting of the drive
- md5sum, needed to check the md5 of documents
- foremost, needed for finding all files of a certain type
- metacam, needed for looking through EXIF/TIFF data
- md5deep, needed for creating the whitelist
- regviewer, needed for viewing the machines registry
- pasco, needed for reading Internet Explorer cache and history
- John the ripper, needed for cracking .pgp files

Appendices

Appendix A - Images - Page 11

Appendix B – Documents - Page 21

Appendix C – Emails - Page 87

Appendix D – Browser History - Page 89

Appendix E – Web page – Page 113



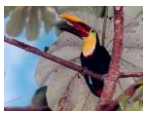








Appendix A – Images


Image No.	Image	File Path	Creation Date	Creation Date on PC1	md5 Hash
1		/Documents and Settings/johndoe/Desktop/birdtrans2.jpg	2004/06/17 18:42:34 BST	2005/02/03 15:04:48 GMT	25f12c1dbb64575b56a92bd cadc88ade
2		/Documents and Settings/johndoe/My Documents/newbies2.jpg	2004/06/22 21:10:50 BST	2005/02/03 15:05:44 GMT	a2ef1f75882f955a1e41b77e 8a593a0e
3		/Documents and Settings/bob/My Documents/My Music/ready2fledge.jpg	2004/06/20 18:01:44 BST	2005/02/03 15:06:42 GMT	25ba487aeb9ae11a3adb64e 4fb32414b
4		/Documents and Settings/johndoe/My Documents/My Pictures/chicks2.jpg	2004/06/27 18:28:34 BST	2005/02/03 15:05:03 GMT	5b3fa4e2e40a5b50e756361 2725e19ea
5		Orphan File 3E8162AFd01	2004/06/18 23:31:56 BST	2005/02/03 15:04:01 GMT	596368518f3c4afc85e08fd0 3e97bd72
6		Orphan File 3E8262AFd01	2004/06/8 23:32:28 BST	2005/02/03 15:04:01 GMT	056347a7d67d714fb535c01 b9667c4cf
7		Orphan File 3E8462AFd01	2004/06/17 18:43:03 BST	2005/02/03 15:04:00 GMT	041a23c317560764d11f100 3deb82e2f
8		Orphan File 3E8662AFd01	2004/06/18 23:31:50 BST	2005/02/03 15:04:01 GMT	cffb68753718298750d0b5b 130e9c372
9		Orphan File 3E8C62AFd01	2004/06/18 23:49:04 BST	2005/02/03 15:04:02 GMT	b887686b7bfa6e4da155ef30 2a3e04b7
10		Orphan File 6A161D2Fd01	2004/06/13 21:34:00 BST	2005/02/03 15:04:03 GMT	65cd3c59f03ab229bd34c3a 20d8bf43a
11		Orphan File 978D14DDd01	2004/06/09 20:14:06 BST	2005-02-03 15:04:06 GMT	23f96443a3014dad5daa642 48f99bbbd
12		Orphan File A0016363d01	2004/06/13 19:44:11 BST	2005/02/03 15:04:00 GMT	a47d625cba6895455d09944 2bad55a3c
13		Orphan File A2E5F216d01	2004/06/19 19:49:58 BST	2005/02/03 15:04:05 GMT	6ec584061dc3fc527b2d5d4 19a696c94






14		Orphan File A3D4DDDDd01	2004/06/22 18:56:18 BST	2005/02/03 15:04:10 GMT	884104db790c715174c2ceff fff97546
15		Orphan File EF29AEAEd01	2004/06/13 20:39:11 BST	2005/02/03 15:04:02 GMT	5ad002eddc616855099b473 23c463a98
16		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_7_E_Y_B_T_E _L_F_1_K_A_N_.j_p_g_	N/A	2005/02/09 11:08:01 GMT	cdb7d83dd80519424eb23a7 e2bb48623
17		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_I_M_G__3_9_ 3_7__f_i_l_t_e_r_e_d_.j_p_g_ -	N/A	2005/02/09 11:08:01 GMT	7da33af8e6ba203e1a4f52f9 60b7151e
18		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_c_u_t_e__p_e_ _n_g_u_i_n_.j_p_g_	N/A	2005/02/09 11:08:01 GMT	915b8be5369ccd6b7cc1278 eed00b413
19		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_B_C_7_ _f_e_e_d_i_n_g__t_h_e_ _b_i_r_d_s_.j_p_g_	2002/12/30 12:28:49 GMT	2005/02/09 11:08:01 GMT	f23c5e544e08726e9228ca91 5882976f
20	 <small>Working on a nest of birds. Copyright © 2000 by the Cornell University Library. Cornell University.</small>	/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_g_l_f_s_- _s_t_o_r_m_- _b_i_r_d_s_.j_p_g_	N/A	2005/02/09 11:08:01 GMT	e1e504e73c0c2944fafc2f45 db0ded37
21		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_c_o_l_o_r_f_u_l _b_i_r_d_s_.j_p_g_	N/A	2005/02/09 11:08:01 GMT	b1e81a55793382729364646 680d51010
22		/Documents and Settings/johndoe/Application Data/Thunderbird/Profiles/8jiqrt 8v.default/Mail/Local Folders/Inbox/_g_a_w_a_l_l_8_ _j_p_g_	N/A	2005/02/09 11:08:01 GMT	80bcd2179290c3e87c8505b 1d1d991a5
23		/BellbirdJumpingOffBranch.jpg	2003-01-29 16:14:10 GMT	2005-02-03 11:42:19 GMT	44d0a2dc29c52a8656bd4bd cb12d794c
24		KeyRetrivingBakedBeanCanFro mTarn.jpg	N/A	2005/02/09 17:05:44 GMT	cc51364cd95f021f7422ab2a 219966ef

25		KeaEatingRentalCar.jpg	N/A	2005/02/09 17:05:44 GMT	3db5fb16b446ea0e92447cf6 399709e9
26		KeyAtTopOfMacKinnonPass09 30.jpg	N/A	2005/02/09 17:05:44 GMT	6070cdc8e0c059ad72fd782a c8b7f161
27		KeaAndMountain.jpg	N/A	2005/02/09 17:05:43 GMT	a46cef1fd7b9735372e7fa07 d5f05457
28		junescreen01.jpg	N/A	2005/02/09 17:05:43 GMT	b86ddb90a6902c83c0e516d 0aaa32f31
29		june03screen.jpg	N/A	2005/02/09 17:05:43 GMT	26ea3ed3b63821dd6ed5d08 28696d741
30		ImmatureSnowyEgretTakingOff .jpg	N/A	2005-02-09 17:05:43 GMT	eb09aea7a30842db52a3bb6a cf23442b
31		GreenHeronOnChicagoLakesho re.jpg	N/A	2005/02/09 17:05:43 GMT	f393ebd21e9f30d4a75e4db4 bf10dc5b
32		GreenHeronCloseup.jpg	N/A	2005/02/09 17:05:43 GMT	acbcefd7efb3a148e050d6fe3 340b4bd
33		GreatEgretInVoloBog.jpg	N/A	2005/02/09 17:05:43 GMT	798a2db6f5695328bf8d116f 2a76f99f
34		GreatBlueHeronWithFish.jpg	N/A	2005/02/09 17:05:43 GMT	5db35478fd169cf7487b1a62 ec872ac4
35		BarnOwl.jpg	N/A	2005/02/03 11:42:19 GMT	35c82564737216998e3d051 f286bb728
36		brd_Ornithologist_TWG.jpg	N/A	2005/02/03 11:42:20 GMT	beaaf73518d8e49e58f116fb d834f537

37		blue_bird2.jpg	N/A	2005/02/03 11:42:20 GMT	91e2843f48162ac7a12a777d 5e4226f5
38		BlackVultureSunningOnPost.jpg	N/A	2005/02/03 11:42:20 GMT	6257f2b469c8820c6a8cf770 3b9dd7c8
39		BlackSwan.jpg	N/A	2005/02/03 11:42:20 GMT	64302e831dc5ddb8c9a0e75 781d5c76f
40		BlackNeckedStiltsFromBehind.jpg	N/A	2005/02/03 11:42:20 GMT	e08381661fdb2f06e0c15b59 9dcad571
41		AmericanWhitePelicansCircling.jpg	N/A	2005/02/03 11:42:19 GMT	9e637c4b39b94f2eb72a8ebc 81684652
42		AmericanAvocetWinterPlumage.jpg	N/A	2005/02/03 11:42:19 GMT	7addf538b2781a0d44d2ef0d 4649e680
43		AlmondMarshGreatBlueHeronStanding.jpg	N/A	2005/02/03 11:42:18 GMT	ed2b7f661974455399f9d083 f01c19fe
44		GreatEgretOverflyingRoseateSpoonbills.jpg	N/A	2005/02/09 17:05:43 GMT	ca239de832cf2a1f6084a693 9ee3d405
45		BaldEagle7oClock.jpg	N/A	2005-02-03 11:42:19 GMT	7c3be8176820e88dcb1f89f6 d2ddbab5
46		/Documents and Settings/johndoe/My Documents/My Pictures/177.jpg	N/A	2005/02/03 15:01:38 GMT	ac192837bda3a7b224fd259d dad99be5
47		/Documents and Settings/johndoe/My Documents/My Pictures/babyscot_2weeks1.jpg	N/A	2005/02/03 15:00:27 GMT	c14916d4a3c790e80e65232 dc8e9a707
48		/Documents and Settings/johndoe/My Documents/My Pictures/babyscot_vyoung.jpg	N/A	2005/02/03 15:00:19 GMT	e3273c1494f601e2e4378580 ca76a1ec

49		/Documents and Settings/johndoe/My Documents/My Pictures/snow_geese.jpg	N/A	2005/02/02 14:18:52 GMT	55cc22374ddd67183a02b2b17d343386
50		/Documents and Settings/johndoe/My Documents/My Pictures/tn_duck_3.jpg	N/A	2005/02/02 14:18:10 GMT	526e5d096bbfc21f593dd2f0b5bcbd6e
51		/WINDOWS/CrouchingKokako.dll/ChestnutMandibledToucan.jpg	N/A	2005/02/02 15:25:10 GMT	db5480ccb1dbbad7ad245629c0fa80e0
52		/WINDOWS/CrouchingKokako.dll/CanadaGooseWashing.jpg	N/A	2005/02/02 15:25:10 GMT	7cace0ace77031856c1dc628b4c0c826
53		/WINDOWS/CrouchingKokako.dll/CanadaGoose.jpg	N/A	2005/02/02 15:25:10 GMT	b7a84aa1ed0763fbeb8d52b386c3d13e
54		/WINDOWS/CrouchingKokako.dll/BrushTurkeyPerching.jpg	N/A	2005/02/02 15:25:10 GMT	55bd5a13fd9663b481bce7f066cbb32c
55		/WINDOWS/CrouchingKokako.dll/Brolga.jpg	N/A	2005/02/02 15:25:10 GMT	e44460b1be9072794611dbd64d319c9
56		/WINDOWS/CrouchingKokako.dll/brd_WoodDuck.jpg	N/A	2005/02/02 15:25:10 GMT	296531879159ce77999f1c8af6d1e92a
57		/WINDOWS/CrouchingKokako.dll/CrouchingKokako.jpg	N/A	2005/02/02 15:25:10 GMT	fa463d5035f0ed111ac59c7f8856d404
58		/Program Files/frankbeecostume_1827_34457581	N/A	2005/02/03 15:42:16 GMT	210527d0c5ff1214b78f95a72b49f512
59		/Program Files/frankbeecostume_1827_84985892	N/A	2005/02/03 15:42:16 GMT	75d03c25d9397282689016b0a3d7bbc5

60		/Program Files/frankbeecostume_1827_96360352	N/A	2005/02/03 15:42:16 GMT	7dc714fe905bafbcaca1c333f4aa35fb
61		Carved File f0033912.jpg	N/A	N/A	880b9bafbfd139aafb30fb2ecd373d7
62		Carved File f0033928.jpg	N/A	N/A	c8556706fc11c2a717f49ee20c1e3292
63		Carved Files f0056920.jpg	N/A	N/A	9e43274bd8374867674f15ffa67be052
64		Carved Files f0056944.jpg	N/A	N/A	aea86094a7a46fa0b8ff889e9da32ef9
65		Carved Files f0056952.jpg	N/A	N/A	dcf99efec7a00d28ed11c8923eb96e95
66		Carved Files f0056936.jpg	N/A	N/A	b12a067c033a94b290f89a733f6ca72a
67		Carved Files f0387624.jpg	N/A	N/A	7bc7bee527e4bed1af3f00d328824d27
68		/Documents and Settings/johndoe/Application Data/Mozilla/Firefox/Profiles/w4nf3obl.default/Cache/B6E0589Dd01	N/A	2005/02/09 11:27:14 GMT	272680b666195514af5423d3db92343e
69		/Documents and Settings/johndoe/My Documents/birdpics.gpg WhiteThroatedSparrowInTree.jpg	N/A	N/A	ae5099b0789f67b971e846ea3be71cef

70		/Documents and Settings/johndoe/My Documents/birdpics.gpg WhiteFacedHeronFlying.jpg	N/A	N/A	b32e0bec9e1c301cfd826d4ef5a13d7c
71		/Documents and Settings/johndoe/My Documents/birdpics.gpg WhiteFrontedParrot.jpg	N/A	N/A	501dfcb0677fe10e7cbd4e25373c23b1
72		/Documents and Settings/johndoe/My Documents/birdpics.gpg WhoopingCranes.jpg	N/A	N/A	4d2c8828ae6ec294c9a234dc b1d7adab
73		/Documents and Settings/johndoe/My Documents/birdpics.gpg yellow-wag-cover-nb.jpg	N/A	N/A	a3695fa7e971d3583083002107faa650
74		/WINDOWS/mui/FantailFrontView.iew.exe	N/A	N/A	864459aedb0450e30cf384c81d470153

Appendix B – Documents

Appendix B – Documents

birdwatching.doc

BIRDWATCHING IN THAILAND

Feathered Magic from Mangroves to Mountaintops by Antony Lynam

One of the great attractions for nature tourists visiting Thailand is the diversity of environments extending across mountain peaks, lowland rainforests, mangroves, coral reefs, farmland and urban jungles. Within a day, or even a few hours travel, one can easily make the transition between these places and witness natural marvels large and small.

For wildlife enthusiasts no group maintains interest and pleasure more than birds. While special efforts are required to see in the wild charismatic species such as elephants and primates, birds are found across the entire spectrum of environments from pristine to severely degraded areas.

Part of the attraction for birds lies in their diversity. Nine hundred and seventy eight bird species have been recorded in Thailand, approximately 10% of the world's total. At the Isthmus of Kra between latitudes 11° and 13°N, a major biogeographic transition between Indochinese and Sundaic forests produces a special diversity of birds with a total of 152 species of birds reaching the northern or southern range limits of their geographic ranges.

Two-thirds of Thai birds are residents, the remainder are seasonal visitors. Locations where migrants congregate, often in large numbers, are highly accessible making Thailand a special destination for birdwatchers.

Many birds are susceptible to human disturbance because they have small geographic ranges, a result of specific habitat requirements. For example, Deignan's babbler - a non-descript forest bird is found on

Doi Chiang Dao and nowhere else in the world. Gurney's pitta are only found in lowland rainforests. Fewer than 30 birds remain in the last known population in Thailand at Khao Nor Chuchi, Krabi. Efforts by local and international conservation agencies strive to increase protection efforts and reforest areas encroached by rubber farmers, though time is running out. With approximately 20% of the birds found in Thailand being globally or regionally endangered species, this makes the country a birdwatching haven for bird enthusiasts.

IDENTIFYING BIRDS

Birds are distinguished first by their size and shape. They range from diminutive flowerpeckers, sunbirds and white-eyes, about the size of your index finger, to lanky storks and egrets that stand almost a metre tall, and Green peafowl with its spectacular 2m tail. The form of the beak offers vital clues about the bird's diet. For example a thin curved tube for sipping nectar or a sharp hook for tearing flesh. The pattern and colour of plumage can tell apart the sexes as in pheasants where males are bright and striking, and females are drab and dowdy. By far the most useful character for identification is a bird's voice. This is especially true in forests where on average 90% of birds are hidden from view. The most experienced birdwatchers in the tropics know their songs and calls.

BEST TIMES TO SEE BIRDS

The nesting season is a good time to be watching birds. During this most active time in a bird's life a variety of vocalizations and behaviours are exhibited. In Thailand, as in other tropical countries, the nesting season coincides with the period when food is in abundant supply. A bird expends much energy in courting, mating, incubating eggs, defending a nest and feeding offspring. Most birds nest during the transition between dry and wet seasons when new leaves and grass shoots sprout. This occurs from February to June. Certain birds depend on the availability of water and nest throughout the rainy season.

Migrants are best observed during their passage into or out of the country, or as they pass through on their way to other places. Most conspicuously, half a million ducks spend their winter in Thailand, feeding and resting in watery roosts from Chiang Saen to Thale Noi. Thousands of garganey and Lesser treeduck flock during January and February.

Shorebirds like sandpipers, stints and plovers migrate long-distances between nesting grounds in Eurasia and tropical Asia and wintering grounds in Australasia. They stop to feed in Thailand's mudflats and mangroves during September to May where they stock up on invertebrates and crustaceans. During October, the southward migration of hawks over peninsular Thailand is an avian spectacle. Chinese goshawks, Japanese sparrowhawks, crested honey buzzards, black bazas, and others are seen coasting on thermals in their thousands daily. Less conspicuous is the blue-winged pitta, a ground dwelling bird that arrives with the rains to nest in deciduous and bamboo forests, and escapes the hot season for the wetter forests of Malaysia and Sumatra.

WHERE TO FIND BIRDS

Given that many birds are denizens of certain times, places, habitats or seasons, the amateur naturalist can remember them by association.

PARKS, TEMPLES AND GARDENS

Some species like barn swallows, magpie robins, mynas and starlings can be found around Bangkok and environs. Lumpini Park, a heavily-used green area in the city centre supports a variety of birds with over 90 species having been recorded there. Temples near Bangkok and Ayutthaya preserve pockets of the natural landscape including birds such as black kites, parakeets and woodland birds that are characteristic of the habitats.

RICE PADDIES, MARSHES AND PONDS

Rice paddies, marshes and ponds away from built-up areas support breeding populations of Asian openbill stork and many other waterbirds.

Key sites: Suphan Buri-Ayutthaya and Beung Boraphet.

PEAT SWAMP FORESTS

Almost the last vestige of Thailand's peat swamp forest at Phru To Daeng or Chalerm Phrakiat Wildlife Sanctuary in Narathiwat supports Lesser adjutants, a kind of stork, along with several birds characteristic of Sundaic forests.

LAKES, RIVER SANDBANKS AND REEDBEDS

Lakes, river sandbanks and reedbeds preserve unique assemblages of wintering waterfowl and perching birds.

Key sites: Chiang Saen, Fang Hot Springs, and Thaton.

AGRICULTURAL LANDSCAPES

Agricultural landscapes across the country support species that tolerate human presence and include kites, rollers, bee-eaters, coucals, weavers and bulbuls.

SANDY BEACHES, MANGROVE AND TIDAL FLATS

Sandy beaches are attractive to tourists but are barren habitats for birds, while little-visited mangroves and tidal flats that are rich in nutrients and microorganisms, are favoured feeding haunts for migrant waders. Some birds like the Brown-winged kingfisher and Mangrove pitta, are entirely restricted to mangroves while Mangrove whistlers and flycatchers rarely leave the area.

Key sites: Samut Sakhon, Ban Laem in Petchburi, and Krabi.

OFFSHORE ISLANDS

Offshore islands such as Phi Phi, Libong, Surin and the Similans support fewer species than similar sized mainland habitats but some such as Nicobar and Pied Imperial pigeon are entirely restricted to these refuges.

SEASCAPES

While there are fewer seabirds in the warm Thai waters compared with those in the northern and southern hemispheres, frigate birds, skuas, boobies, and terns are among the rewards for marine birders.

FORESTS

Most resident Thai birds depend upon forests for their survival. Rainforests in the extreme south support the greatest avian diversity, while seasonally dry dipterocarp, mixed deciduous and evergreen forests in the centre and north.

Key sites: Khao Yai National Park, Kaeng Krachan National Park, Khao Soi Dao, Nam Nao National Park, Khao Nor Chuchi, Ban Nai Chong, and Hala Bala Wildlife Sanctuary.

MOUNTAINS

Sibias, minlas, and laughing thrushes are relatives of species found in the Himalayas and southern China, and can only be found in mountain forests. Following surveys of high mountain peaks in the last decade, at least 20 new species or 2% of the total have been added to the lists for Thailand.

Key sites: Doi Pha Hom Pok, Doi Chiang Dao, Doi Inthanon, Doi Ang Khang, and Doi Suthep.

By visiting these enchanting destinations, travellers can appreciate the avian wonders that Thailand offers and better understand the importance of the wild and not so wild areas that preserve them.

Contact information:

Bird Conservation Society of Thailand (BCST)*

69/12 Soi Ramindra 24, Jorakaebau, Ladprao, Bangkok 10230, Thailand

Email: bcst@box1.a-net.net.th

Tel: 66-(0)-2943-5965

Web sites:

www.bcst.org/index_ebird.html

www.thai.net/bcst

* The Bird Conservation Society of Thailand (BCST) is a BirdLife Partner

Oriental Bird Club (OBC)

c/o Uthai Treesucon, 723/1 Mu 2 Soi Ram Intra, Jorakhaebua, Bangkok 10230.

E-mail:

utree@loxinfo.co.th

mail@orientalbirdclub.org

Web site: www.orientalbirdclub.org

Wildlife Conservation Society - Thailand Programme

P.O. Box 170, Laksi, Bangkok 10210

Tel: +662-503 4478, +662-503 4479

Fax: +662-503 4096

Email: thailand@wcs.org

Reference information:

Field guide

Robson, C. 2002.

A field guide to the birds of Thailand.

Asia Books, Bangkok. 272pp.

TAT PUBLICATIONS ON NATURE TOURISM

For more information on birdwatching in Thailand, please refer to the following nature tourism guide books in the "National Park" series published by the Tourism Authority of Thailand as part of the Tourism and Employment Creation Plan implemented under the Social Investment Project.

· KHAO YAI: DONG PHAYA YEN FOREST RANGE

ISBN 974-8252-70-1

· KAENG KRACHAN:

Amazing Forest of Phetchburi River

ISBN 974-8252-72-8

· KHAO SOK

Fascinating Limestone Mountains Amid The Verdant Forest of Surat Thani, Thailand

ISBN 974-679-099-4

· DOI INTHANON - DOI SUTHEP

The Himalayan Springs of Thailand

SBN 974-8252-67-1

· PHU LUANG

The Kingdom of Plants

ISBN 974-8252-73-6

BIRDWATCHING TIPS

- Consult field guides, checklists, and maps prior to arriving at the birdwatching destination.
- Dress in colours that blend in with the surroundings.
- Bring appropriate equipment such as telescope, bird guide, and a notebook.
- Plan to arrive at the destination at sunrise when birds are first out in search for food and are most active.
- Walk slowly stopping at intervals to listen for calling birds.
- Look for the birds in thickets, on the branches of trees, and on the ground.
- Avoid talking, smoking, or walking on dry leaves, all of which will scare birds away.

CONSERVING BIRD DIVERSITY

Across the world, humans coexist with birds but human activities often affect the survival prospects for birds. Forty-eight species of birds found in Thailand (5% of the total) are globally threatened by the loss or disturbance of their habitats, food resources, and breeding areas, and by other human actions,

and so require special conservation attention. A further 97 species (10%) are potentially threatened if current trends persist.

In Thailand, 101 species (10% of the total) are hunted as pests, for food or for the pet trade and are directly threatened by humans. The list of hunted species includes waterbirds, birds of prey, pheasants, parakeets, pigeons, hornbills, pittas weavers, bulbuls, and other forest birds. Worldwide the trade in birds includes 2,600 species and several million birds each year. Ten percent of threatened birds worldwide are affected by the bird trade.

There are a number of ways in which the numbers and distribution of threatened birds are being restored. Habitat conservation programmes are an important mechanism. Feeding habitats for seasonal migrants are being preserved by incorporating mangroves and coastal tidal areas in marine protected areas. Lowland forests that support Gurney's pitta and other diversity are being protected and a reforestation programme planned. Preventing encroachment around the edges of parks maintains the integrity of forest blocks used by the majority of native birds, including migrant raptors and songbirds.

In most cases, preserving and protecting natural habitats can bring back even highly endangered populations of rare birds. These measures are relatively cost effective to implement. As an example, a 3-year Khao Yai Conservation Project preserved over 2,000 sq km of wildlife habitat, discouraged poaching, and provided employment alternatives for local forest resource users, at an annual cost of 7 million baht (US\$171,000).

For critically endangered species, whose populations are extremely small, and whose survival in the wild is uncertain due to factors that simply cannot be controlled, other more costly measures such as captive breeding, are being considered. Captive breeding is risky because birds need to be recovered from the wild to establish breeding populations, and injury is possible. Some species do not breed well in captivity because their natural courting and nesting behaviours are no longer possible. Strict controls on who is allowed to breed endangered species, registration of individuals, and enforcement of laws so that commercial sale is not possible, need to be adopted. Without these controls, captive breeding programmes cannot succeed.

HOW YOU CAN HELP IN THE CONSERVATION OF BIRDS

Visitors to Thailand can assist efforts to preserve and maintain the diversity of birds and their habitats simply by visiting national parks and other wilderness areas. Bird enthusiasts can report the species they observe to authorities. Checklists are now available at many popular national parks. Tourists can report evidence of suspicious activity that might lead to the arrest of unscrupulous individuals trapping or hunting birds and can also participate as volunteers in habitat conservation programmes. In these ways, tourists can help reduce the threats to birds, and at the same time enjoy Thailand's birdwatching paradise.

Contact information:

TO REPORT BIRD SPECIES OBSERVED

· TO REPORT BIRD SPECIES OBSERVED

Please contact the Park Visitor Centre of the National Park

or

Bird Conservation Society of Thailand (BCST)*

69/12 Soi Ramindra 24, Jorakaebau, Ladprao, Bangkok 10230, Thailand

Email: bcst@box1.a-net.net.th

Tel: 66-(0)-2943-5965

Web sites:

www.bcst.org/index_ebird.html

www.thai.net/bcst

* The Bird Conservation Society of Thailand (BCST) is a BirdLife Partner

· TO REPORT EVIDENCE OF SUSPICIOUS ACTIVITY

Please contact

Wildlife Protection and Suppression Office

Department of National Parks, Wildlife, and Plant Conservation

61 Paholyothin Road, Chatuchak, Bangkok 10900

Tel: 66-(0)-2579-5266

· HABITAT CONSERVATION VOLUNTEER PROGRAMMES

Please contact

Wildlife Conservation Society - Thailand Programme

P.O. Box 170, Laksi, Bangkok 10210

Tel: +662-503 4478, +662-503 4479

Fax: +662-503 4096

Email: thailand@wcs.org

FAMILIES OF BIRDS IN THAILAND UNDER THREAT

The following bird species are under threat because there is a high demand for them and they are hunted for the local, regional and global bird trade. To help preserve the species, please refrain from purchasing any of the following birds as pets, and if you happen to witness any of the following birds being sold or traded, or note any suspicious activities involving them, please contact:

The Wildlife Protection and Suppression Office

Department of National Parks, Wildlife, and Plant Conservation

61 Paholyothin Road, Chatuchak, Bangkok 10900

Tel: 66-(0)-2579-5266

1. Phasianidae (wood partridges and pheasants) - 4 species

2. Anatidae (White-winged duck) - 1 species

3. Picidae (woodpeckers and barbets) - 3 species

4. Bucerotidae (hornbills) - 7 species

5. Upupidae (Common hoopoe) - 1 species

6. Cuculidae (Coral-billed ground cuckoo) - 1 species
7. Psittacidae (parrots and parakeets) - 4 species
8. Columbidae (pigeons) - 12 species
9. Accipitridae (birds of prey) - 9 species
10. Threskiornithidae (White-shouldered ibis) - 1 species
11. Ciconiidae (Lesser adjutant) - 1 species
12. Pittidae (pittas) - 3 species
13. Irenidae (Asian fairy bluebird and leafbirds) - 6 species
14. Corvidae (jays, crows, magpies, orioles and minivets) - 14 species
15. Muscicapidae (thrushes, robins, and sharmas) - 3 species
16. Sturnidae (starlings and mynas) - 3 species
17. Paridae (Yellow-cheeked tit) - 1 species
18. Pycnonotidae (bulbuls) - 7 species
19. Zosteropidae (Japanese white-eye) - 1 species
20. Sylvidae (laughing thrushes, mesias, minlas and sibias) - 8 species
21. Nectariniidae (Scarlet-backed flowerpecker) - 1 species
22. Passeridae (weavers and munias) - 7 species
23. Fringillidae (grosbeaks and buntings) - 3 species

About The Author

ANTONY LYNAM

Antony Lynam (Ph.D.), Wildlife Conservation Society (WCS)- Thailand Programme Director and conservation scientist, works with the Thailand Department of National Parks, Wildlife and Plants to develop programmes for the conservation of the country's endangered species, park resources management, and the design and conduct of training curriculum for park rangers.

An Australian citizen, he has authored a number of technical papers and popular articles concerning conservation issues in Australia, North America, and Thailand, and was a contributor to the seminal volume on habitat fragmentation "Tropical Forest Remnants: Ecology, Conservation and Management". He writes frequently on natural history for magazines, journals and newspapers including Wildlife Conservation, The Nation, The Bangkok Post, and The Natural History Bulletin of The Siam Society.

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Dear Sir

Further to our conversation everything we have discussed has been done

Yours faithfully

John Doe

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An Insider's Guide to Enjoying Your First Birding Field Trip

by Pete Dunne

Field trips are a lot like going to a dance, and there are two schools of thought. You can just waltz onto the dance floor and let the other person lead or you can learn a few basic dance steps beforehand. Here, for those who want to get a jump on etiquette, are some of the basic rules of the birding field trip. Learn them, and you'll spend more time birding and less time tripping over your feet.

- Rule 1 - Never miss an opportunity to use a restroom.

Your capacity for birding may be limitless but your bladder is not. Some leaders are generous with their planned rest stops; some are miserly. Whenever the group arrives at a planned rest stop, take full advantage {and mind your coffee consumption between stops}.

- Rule 2 - Familiarize yourself with whatever pre-trip information is sent.

Most organized field trips come with instructions. In the pre-trip material, you will almost certainly find the answers to your most pressing questions: dress, equipment needs, time commitment, lunch plans. Being prepared is the first step toward having a great time.

Re: Clothing. Rule of thumb: In winter, if in doubt, just bring it. In hot weather, cover up for sun protection-this means hat, long-sleeved cotton shirt, long pants. At any time of year, avoid bright colors, particularly white. In the universal language of wild creatures, white means "Danger! Watch Out! Hide ! It's not the message you want to send.

- Rule 3 - Don't be late.

When you join a group, you sacrifice a measure of self-determination. One of the quickest ways to annoy the group leader and everyone else, is to arrive late and delay the group's departure.

- Rule 4 - Don't wander off.

The second quickest way to annoy the group leader is to wander off. You don't want to be left behind and you don't want to be the focus of an unnecessary search. If you plan to leave the group, for a short time or for the balance of the day, be certain you inform the leader.

It is in your interest to stay close to the leader and the more experienced members of the group so that you can rely on their knowledge and bird-finding skills.

Staying close applies to car caravanning, too. The rule of thumb is one car length back for every ten miles per hour of velocity. Thirty miles per hour; three car lengths behind the bumper ahead of you. Sixty miles per hour; six lengths. Don't trust yourself to keep the pace? Don't drive. Car-pool with someone else.

- Rule 5 - Come prepared.

If the trip involves driving, make sure you have enough fuel to see you through. If the instructions state "bring lunch," don't assume that you'll be able to stop at a convenience store to pick up a sandwich. Do that, and you'll likely be eating alone.

- Rule 6 - Check out your equipment before the trip.

The single greatest frustration first-time trip goers face is not inexperience, but rather the lousy or malfunctioning equipment - usually optics.

If your binoculars aren't working, ask whether a loaner is available. If you don't own binoculars, do not rush out to the nearest discount store and buy some for the trip. People who do this usually end up with instruments they soon replace. Borrow binoculars for the trip. Use your field trip experience to see what instruments experienced birders are using in order to make an educated purchase later.

- Rule 7 - Speak Softly.

Human voices put wildlife on alert. Talking may also prevent a leader from hearing songs or calls and keep you from hearing instructions. Field trips are social and conversation is part of the field trip experience. If you want to converse, do so in whispers or stand away from the group.

- Rule 8 - Keep motion to a minimum.

More than sound, birds react to motion. In close proximity to birds, don't move quickly and above all do not advance until the leader gives the word. Want to draw the ire of a group? Walk toward "the bird of the day" and scare it away.

- Rule 9 - Don't monopolize the leader.

Sure you have questions. Sure you want to get to know the leader, and you want them to come to recognize your wonderful qualities, too. One of those qualities should be deference, because everyone in the group shares your ambition. Deference extends to use of the spotting scopes, too.

When the leader trains his scope on an interesting bird, and you were first to get a glimpse last time, defer to others the next several times. No matter what your place in line, first looks through a scope are quick looks. After you get an identifying glimpse, step quickly aside for the next person. If the bird is moving, reposition the scope so the next user won't have to pan back and forth. After everyone has had their glimpse, more leisurely viewing is possible.

- Rule 10 - Do ask questions.

Leaders want to share their knowledge, and questions are the catalyst that unlocks it. Don't be intimidated by what you don't know or what you presume that others know. Chances are your question is shared by others in the group. You may not be the leader, but if you trigger the answer to a question that some other member of the group was too shy to utter, you'll be their hero. That's it. All you need to know to get the most out of your first field trip experience. If it seems like too much to remember, just remember Rule #1. At any other time, there will be someone else around to ask for assistance.

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Number 57ab in a series of

Bird Guides of Western Australia

Birding Sites Around Perth

Birding Sites

Around Perth

is a comprehensive guide to Perth's best bird watching sites, including Kings Park, John Forrest National Park and Rottnest Island.

This revised and enlarged edition describes forty-six sites within a 60 kilometre radius of the city, with excellent location maps, lists of birds regularly seen, and notes on species of special interest. Also provided are suggested bird watching tours for local enthusiasts and visitors, and a wealth of information on endemic species. Over 200 birds are featured in 165 pages.

Illustrated throughout with colour photographs and pencil drawings, is an excellent introduction to bird watching and to Perth's wildlife

heritage.

Copies of the book are available for purchase from the Birds Australia office during office hours or available by post.

WHAT IS BIRDS AUSTRALIA?

INTERESTED?

Birds Australia is a non-profit national organisation working for the enjoyment, study and conservation of Australia's birds. The WA group of Birds Australia has members statewide and offers a variety of activities for members, including conservation and research projects.

Activities and services include excursions, camp-outs, bird surveys and social activities. We also have a library, books for sale and information about birds.

To view our full range of bird guides and bird lists, visit our web site.

Contact us at:

Birds Australia Western Australia Inc.
71 Oceanic Drive
Floreat WA 6014 Weekdays 9.30 - 12.30 pm

Phone: (08) 9383 7749

Fax: (08) 9387 8412

Email: birdswa@iinet.net.au

Web: birdswa.iinet.net.au

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GARDEN at Berkeley, California Spring 2001

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UNIVERSITY of CALIFORNIA

NEWSLETTER

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GARDENARDEN

spotted towhees are
most commonly
found in the scrub-
by areas of the
South American and
Australasian sec-
tions. Similarly,
native riparian
species are found in
the trees along

Strawberry Creek,
such as Wilson's
and orange crowned
warblers.

Many birds have
identified new food
sources among the
many non-native
plants in our collec-
tions. This is partic-
ularly obvious when
watching humming-

birds feed on both native salvias and penstemons, and also on
bird-pollinated plants from other parts of the world. Aloes in
the Southern African Area are pollinated by sun birds in their
native habitat. These small colorful nectivores perch on the
rigid blossom stalks of the aloes. This is a distinct contrast to
the hovering feeding habit of the hummingbirds, which as a
group are restricted to North and South America. Nonethe-
less, as a walk through this area at this time of the year
demonstrates, hummingbirds utilize aloes extensively and
assertively defend their feeding resources against other
intruding hummers.

—Chris Carmichael

Academic interest in the Garden's bird life
over the last few years has primarily
been associated with undergraduates
studying the territorial behavior of
hummingbirds. Any regular Garden
visitor can tell you however, that you've
never really experienced the Garden until you
have taken the time to sit and just watch the birds, listen
to their songs and enjoy the way in which they use the
Garden! Encouraged by the vast plant variety and habi-
tat diversity, there are around seventy-six bird species reg-
ularly sighted here over the course of an average year. The

hope of spotting one of the more rarely sighted birds, such as the Western Kingbird or the White-throated Swift, keeps our endless parade of avid birdwatchers in thrall.

Our resident birds, however, whether it's an audacious jay, a noisy woodpecker or a colorful finch, provide plenty of ongoing interest for the Garden community.

The diverse collections of the Garden support an equally diverse population of birds, as is apparent in the list

from the recent Christmas Bird Count. In addition to providing general shelter for both resident and migrant species, our collection provides food and nesting sites for many different taxa. The Garden environment offers a range of habitats that are rather different from the native chaparral of the canyon. Some visitors to the Japanese Pool, such as belted kingfishers and green and blue herons, might not otherwise stop in Strawberry Canyon. Native chaparral species are found in parts of the Garden that more closely approximate their preferred habitat. Wren tits, California thrashers, and

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Aloes in the Southern African Area attract hummingbirds and demonstrate how birds at the Garden enjoy the diversity of plants in this collection.

Birds at the UCBG

"It's a hummingbird! But is it
Anna's, Allen's or Rufous?"

2 University of California Botanical Garden at Berkeley

Before 1900, Americans engaged in a holiday tradition known as the Christmas "Side Hunt". People would choose sides and go afield with their guns; whoever brought in the biggest pile of feathered quarry won. On Christmas Day 1900, ornithologist Frank Chapman, an early officer in the Audubon Society, called for an end to the slaughter. Rather than shooting birds, he suggested counting them. From Toronto to Pacific Grove, California, the Christmas Bird Count began. In its first year, 27 people participated, counting 18,500 individual birds of ninety species.

On Christmas Day 2000, 52,000 people participated in 1800 counts in the United States and Canada. They sighted 78,636,382 individual birds of 676 species! A century of bird counts has amassed a wealth of data which scientists use to monitor the health of bird species, pinpoint and explain trends, and detect the rise of environmental threats.

Along with three other members of the Audubon Society, I came to the rich and varied habitats of the UC Botanical Garden for this annual count. We found a total of 226 individual birds of 38 species, including such rarities as hermit and black-throated warblers.

—Dennis Wolff

From Killing to Counting

AUDUBON CHRISTMAS COUNT
DECEMBER 17, 2000

American Robin 30
Anna's Hummingbird 25
Steller's Jay 21
Bushtit 16
Golden-Crowned Kinglet 14
Ruby-Crowned Kinglet 12
Yellow-Rumped Warbler 10
Townsend's Warbler 9
Western Scrub-Jay 9
Chestnut-Backed Chickadee 7
Hutton's Vireo 7
Song Sparrow 6
California Towhee 5
Golden-crowned Sparrow 5
Bewick's Wren 4
Fox Sparrow 4
Dark-eyed Junco 4
Turkey Vulture 3
Hermit Thrush 3
Allen/Rufous Hummingbird 3
Common Raven 3
Band-Tailed Pigeon 2
Northern Flicker 2
Black Phoebe 2
Red-breasted Nuthatch 2
Brown Creeper 2
California Thrasher 2
Spotted Towhee 2
White-crowned Sparrow 2
Cooper's Hawk 1
Sharp-shinned Hawk 1
Red-breasted Sapsucker 1
Nuttall's Woodpecker 1
Hairy Woodpecker 1
Wrentit 1
Black-throated Gray Warbler 1
Hermit Warbler 1

When not watching birds from the Elizabeth Hammond Interpretive Center, where he is pictured here, noted local ornithologist Dennis Wolff,

regularly teaches popular birdwatching classes in the Garden.

Dr. Chris Carmichael, UCBG Manager of Collections and Horticulture, is one of our noteworthy birders, a group which also includes Dr. Jennifer White, Associate Director for Education, and Curator Holly Forbes. Chris' academic background in vertebrate zoology equips him to effortlessly make the connections between the birds here in the Garden and their relationships to the plants.

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Spring 2001 3

SIBLEY'S GUIDE TO BIRDS

National Audubon Society: The Sibley Guide to Birds, written and illustrated by David Allen Sibley; A Chanticleer Press Edition, Alfred A. Knopf, NY, ©2000; 544pp. Flexible Binding. \$35.00.

Most visitors to the Garden come to see and study our special plants, but a surprising number also come to see the animals and birds which feed

and take shelter in the hospitable environment. We have newts which breed yearly in our Japanese Pool and monarch butterflies visiting our milkweed plants. Now and again we are surprised to learn that we are on the Audubon Society's Hotline, as we were several years ago when dozens of visitors came to see a rare bird sighted in the southwest corner of the Garden.

In past years, the Roger Tory Peterson Field Guide to Western Birds, or the National Geographic Society's Field Guide to Birds of North America, were seen tucked under the arms of our 'Garden Birders'. Now there is a new, up-to-date field guide these birders will want to own, although its size and weight make it awkward to carry in the field.

The Sibley Guide to Birds is a great user-friendly guide containing over 6600 wonderfully detailed watercolor paintings of 810 species and 350 populations of North American birds. Descriptions and remarks accompany the illustrations, removing the need to flip back and forth between text and pictures. The birds are shown in similar poses to make comparisons between species easy. All important plumages are depicted and range maps show migration routes, summer, winter, and breeding locations, and bird distribution. Of particular interest are the good introductory pages preced-

ing each family or group of families showing bird classification and speciation at a glance.

In many ways the publication of *The Sibley Guide to Birds* can be compared to the publication of *The Jepson Manual: Higher Plants of California* a few years ago. Both were preceded by respected long-used references. It is likely that the *Sibley Guide* will become the current authority for birds, as the *Jepson Manual* has become for plants. But keep your worn, well-loved field guides handy. For this reader, at least, it is hard to think that the beloved *California Quail in the Garden* calls "put-way-do" rather than the familiar "chi-ca-go" of old, which we teach the touring school children.

The Garden Shop also carries the following books related to the above review:

■ *Birds of Northern California* by David Fix and Andy Bezener; range maps by Don Roberson and David Fix; Lone Pine Pub., Renton, WA, ©2000; 384pp. Paper. \$19.95.

■ *Birds of San Francisco and the Bay Area*, by Chris C. Fisher and Joseph Morlan; Lone Pine Pub., Renton, WA, ©1996; 159pp. Paper. \$9.95.

■ *Common Dragonflies of California*, A

Beginner's Pocket Guide, by Kathy Biggs; Azalea Creek Pub., Sebastopol, CA, ©2000. 96pp. Paper. \$9.95.

■Newts and Salamanders, Everything about Selection, Care, Nutrition, Diseases, Breeding, and Behavior, by Frank Indiviglio; with photos by Richard D. Bartlett; illus. by Michele Earl-Bridges; Barron's, Hauppauge, NY, ©1997; 128pp. Paper. \$6.95.

Brochures:

■Birds of the UC Botanical Garden, UC Botanical Garden Staff. \$1.00.

■Butterflies of the San Francisco Bay Region, A County Species List, 5th ed., by John Steiner; San Francisco Bay Wildlife Soc, 1988. \$1.00.

—Elly Bade

University of California Botanical Garden at Berkeley⁴

Cactus drawings by UCBG horticulturist, Judith Finn. Above: *Gymnocalycium saglionum* and at right: *Euphorbia cf. leuconeura*.

able. The new house provides the public with excellent visual access to the exciting and unusual plant forms in this collection while ensuring their security.

UC researchers are anxiously awaiting opening of the Center for the Study of Plant Conservation (CSPC) at the Garden. Although the lab is not yet finished, scientists associated with this center are already exploring a diversity of questions related to plant conservation. Richard Shefferson, a

graduate student at the Center, writes in this issue about his research devoted to discovering the types of fungi that sustain terrestrial orchids. Another graduate student, Jessica Riquetti, recently established a major field experiment to determine whether soil-borne organisms can limit the spread of European beach grass, an invasive species that reduces native plant diversity in sand dunes along the Pacific coast of North America. Work by these students and other scholars will be greatly facilitated by the new Center.

In preparation for our next round of construction, we have just begun design of the Jane Gray Research Greenhouse, which will be an important adjunct of Garden research in plant conservation and ethnobotany. This house will be erected in the place currently occupied by the temporary arid house and will serve researchers from both the CSPC and elsewhere on the Cal campus.

Although construction is the most visible sign of progress that visitors can see, the Garden has many other achievements to celebrate as well. Our educational outreach programs are receiving national recognition. Many partners are joining our Math in the Garden initiative. Beginning this spring staff at the UC Davis Arboretum, Brooklyn Botanic Garden, Missouri Botanical Garden, Morris Arboretum, and Atlanta Botanical Garden become active partners in the development process of the 'Math in the Garden' project as they try out the activities in their own programs. San Francisco Girl Scout Council troops and 4-H programs across California are also partners in this effort. Over the next year their evaluations of the effectiveness of the project's activities will provide crucial information to ensure that the final published materials will fit into different informal settings and programs and work in gardens throughout the country. Collaborations with these, and other partners, provide audiences diverse program opportunities that strengthen this and other aspects of the Garden's Education Programs.

Celebrating the Garden

Spring is here again! The hills are green and spangled

with flowers. The wind is whipping across the coastal bluffs, and anyone with even the slightest inclination toward gardening has their hands in the soil. As I watch the seasons march across the landscape and think back to the past year, I'm amazed at the amount of progress we have to celebrate here at the Garden.

The living collection is in superior condition. Over the years, the horticultural staff has done an inspired job of maintaining and building the collection. However, with leadership by Manager of Collections and Horticulture, Chris Carmichael, and better access to materials and supplies, they have added new shine to the Garden. I invite you to push past the construction sites in the entrance to get a better look!

Ah, yes, those construction sites. We were so excited when they started. Now, we look forward eagerly to their completion. The Garden has not been a peaceful place to work or visit this year. Staff and volunteers have been wonderful, carrying out their work over the din of jackhammers, dump trucks, cement mixers, and more. From all this dust, mud, and upset, the Garden is gaining many physical improvements. Some, like the utility upgrades, make our jobs easier but are invisible to visitors. Others, such as renovated bathrooms and FEMA restoration of pathways in the Mexican and Central American area, are essential but not sensational. Many projects, though, are downright sensational!

Master rock garden creator, Phil Johnson, has just completed a spectacular hardscape in the Southern African section, and horticulturist Lawrence Lee will soon begin planting it with material obtained during his collecting trips to South Africa. This garden will feature the natural beauty of bulbs and succulents from the winter rainfall areas of the Karoo and Fynbos semi-arid and desert habitats. It also provides an opportunity to inform visitors about the precarious situation of these habitats in the face of regional development and global climate change.

Our new Arid House is also nearing completion. The name has recently been changed to Arid House from Desert Greenhouse — Arid House being more appropriate for that collection, though we are still making the name transition. This structure will house a substantial number of the most biologically and scientifically valuable plants in our collection, including many living “type” specimens. Type specimens are the exemplar individuals a taxonomist uses to describe a new species. Other specimens belong to species that are now extinct in the wild, and are therefore irreplace-

DIRECTOR’S COLUMN

Spring 2001 5

Our collaboration with East Bay Municipal Utility District, which resulted in our spectacular and innovative contribution to last year’s San Francisco Flower and Garden Show, is now producing exciting new Garden interpretation materials. Garden staff and dedicated volunteers worked with EBMUD staff to develop an extensive and well-received tour of Plants for Water-wise Gardening. (See the Education Director’s column for more information about this tour.) The tour takes advantage of our diverse and outstanding collection to illustrate landscape uses of water-conserving plants. Most species highlighted in the tour are available in the horticultural trade, but some are not, which puts the tour on the leading edge of horticultural innovation.

Through all of these changes, the Garden continues to expand its primary mission of support for botanical research. New molecular tools are allowing exciting discoveries in evolutionary biology and plant systematics. These tools work best on DNA extracted from live tissues, which makes living collections such as ours ever more important scientifically. Important new studies that have used UC Botanical Garden specimens are finding exciting and sometimes disturbing results. For example, Olmstead, DePamphilis, Young, and

colleagues report this spring in the American Journal of Botany, (Vol. 88: 348-361, 2001) that the snapdragon family (Scrophulariaceae) is not a natural evolutionary grouping. In their new interpretation, which was based in part on samples from the UC Botanical Garden, the only member of this family in the California flora that will remain in the Scrophulariaceae is the eponymous *Scrophularia californica*! Even the snapdragons (*Antirrhinum*) will no longer be in the “snapdragon” family.

Although living tissue is the sine qua non for molecular phylogenetics, it is still essential that every plant used in such research be vouchered. Vouchering, which involves removing a sample of the plant to produce a herbarium specimen, creates a permanent record that persists after death of the plant itself. It is essential that Garden material be vouchered so that future scientists can examine the specimens that today’s botanists are using to classify plants and understand their evolutionary relationships. Thus, an important goal of the Garden is to voucher all accessioned plants in our collection. This academic year, our graduate student assistant, Rich Shefferson, has helped to voucher 274 plants in our collection.

With all this happening this year, one might ask whether Garden staff has had time to plan very far into the future. In fact, we have embarked on the early stages of strategic planning and, as the first round of construction nears completion, we will continue to move forward on this very important project.

—Ellen Simms

Gardening Tips

■The larvae of the diamond back moth can be a serious pest for members of the cabbage family, including cabbage, broccoli, collards, kale and others. The insects are becoming resistant to Bt, which has been used widely to control the insect. A researcher in Florida

found that the larvae of the moths prefer feeding on highly fertilized collards more than on any other members of the family. Fields of crucifers to be protected are surrounded by a crop of specially treated collards, resulting in a reduction of sprays from 75 to 100%. In addition, a naturally occurring parasitic insect of diamond backs built up in the collards, and this helped control them in the desired crop. *Agricultural Research* 47 (3): 26.

■The old world fern, (*Lygodium microphyllum*), introduced into Florida in 1950, now covers over 40,000 acres. In the last 6 years, there has been a 100 fold increase. A single leaf can be 100 feet long. Fortunately, it is believed that the plant will not move farther north than central Florida. *American Nurseryman* 191 (3): 10.

■*Euphorbia esula*, an introduced species in the northern midwestern states, has colonized vast areas of marginal and non-agricultural land, displacing many beneficial plant species. In addition, it is toxic to sheep, cattle and horses. Recently, a gall midge was released which produced galls on the stem tips resulting in their destruction, thus preventing flowering and seed production. The insect may produce 3 or 4 generations in a season though the first generation produces the largest number of adults. It is these that can be harvested and used for new releases. *Biological Control* 16(2): 128-132.

—Robert D. Raabe

Garden Visitors

(left to right): Horticulturist Elaine Sedlack accompanied Mark Flanagan, “Keeper of the Gardens” at Windsor Great Park, and William McNamara, director of Quarryhill Botanical Garden in Glen Ellen, CA, during their visit on April 16th. Mr. Flanagan was the April speaker for the California Horticultural Society meeting.

The Overlooked Equation

When I was an undergraduate living in Chicago, I volunteered at local county nature preserves to help restore Illinois' endangered prairies, savannas, and wetlands. Very often, my work involved monitoring the endangered plants that grew in the area, especially the imperiled populations of native, wild lady's slippers.

The lady's slippers we all know and love (*Paphiopedilum* spp.) are tropical, and have been propagated and hybridized for many years. Should you ever see a lady's slipper of the genus *Cypripedium* on display at a nursery, be warned – it was most likely stolen from the wild. *Cypripedioid* lady's slippers grow on the wild lands of North and Central America, Europe, and Asia, and have not been propagated successfully at all. Yet, as we have seen in other endangered plants, propagation is very often integral to successful restoration.

Why has propagation been so unsuccessful? The biology of orchids, especially the rare terrestrial orchids that evolved in the temperate regions of the world, is very complex. In fruiting structures known as pods, they produce thousands to millions of seeds no longer than a single millimeter, and half that in width. These seeds very rarely survive to produce a mature plant, and this seems to be why they have evolved to produce so many seeds all at once. The seeds scatter in the wind and find a new place to settle in the soil. Once the winter snows and rains are over, they imbibe water, and then they just sit. Why? Because they cannot progress any further

in their development without the aid of a soil-inhabiting fungus. The orchid family is one of the few plant families that depends completely on soil fungi for germination. This kind of interaction is called "mycorrhizal," and requires some more explanation.

A mycorrhiza is an interface of two organisms – a plant and a fungus. The fungus, which can be one of many different species, grows through the soil as a mass of tiny filaments known individually as hyphae, forming a hyphal network called a mycelium. The fungus grows outward, looking

GARDEN NOTES

SUDDEN OAK DEATH...Horticulturists Judith Finn and Jerry Parsons attended an all day symposium, “Combating the Sudden Oak Death Phytophthora: a new disease”, in Marin County, hosted by UC Cooperative Extension on March 9th.

CHANNEL ISLAND VISIT...Horticulturist Nathan Smith accompanied Steven Junak, of the Santa Barbara Botanic Garden, on a three-day visit to San Nicolas Island in late March. This island is part of the southern group of Channel Islands off the coast of southern California. They were conducting plant surveys and removing exotic plants. Nathan was able to collect several plants for the Garden’s Californian Area.

GARDEN SHARING...Curator Holly Forbes, distributed duplicates of the Garden’s epiphytic cactus collection to the

Huntington Botanical Gardens in San Marino and to Ganna Walska Lotusland in Santa Barbara. It is common practice among gardens to share duplicates of collections, providing some protection against loss in any one location. John Trager, Curator of Desert Collections at the Huntington, donated several collections of South African material for the Garden’s African Area.

RESEARCH GRANT...We are pleased to report that the Genetic Resources Conservation Program at UC Davis funded a grant proposal by Dr. Jason Koontz and Holly Forbes to study the genetic variability of Baker’s Larkspur, *Delphinium bakeri*. The research will seek to determine the genetic diversity of this species to obtain base-line data for future research and conservation efforts. The grant money will pay for the

cost of DNA analyses to be performed by Dr. Koontz. Baker's

This *Cypripedium californicum* in the Garden was collected by Garden horticulturist, Roger Raiche.

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Spring 2001 7

for new patches of resources to digest and absorb. Part of the mycelium grows into the root system of a plant, penetrating the root tissue itself, and "colonizes" it. Other parts of the same mycelium grow far beyond the range of the plant's root system, and collect nutrients such as phosphorus and calcium. Amazingly, the mycelium then gives the plant vast quantities of these nutrients, which are very often limiting to the plant's growth. But the fungus does not do this out of the goodness of its fungal heart! It gets a very valuable commodity from the plant: carbon. The plant produces sugar in its photosynthetic leaves, and it now appears that, on average, at least 20% of all the sugar produced by the plant goes to the fungus. This makes sense: the plant is limited much more by phosphorus, calcium, and other nutrients than carbon. Hence, the fungus and the plant seem to exist in a mutually beneficial system.

The importance of mycorrhizae is evident in the fossil record, which shows that the first land plants (now thought to be *Rhynia* species), growing roughly 500 million years ago, actually had mycorrhizal structures in their roots. Indeed, current estimates suggest that 90% of plants are mycorrhizal – a situation that clearly displays the importance of this unusual interaction.

Which brings us back to the orchid. Orchids are unlike any other plants. We are discovering that this is true in their biology as well as in their aesthetics. Orchids break all the rules. With most plants, germination and growth are possible

without fungi, although the plant will generally be stunted throughout its life. But orchids do not appear to grow without these organisms. Although some orchids can be cultivated in the lab under very specific conditions, these orchids generally grow poorly relative to their wild-grown kin. More and more we find that most orchids cannot even germinate without a fungus.

Why should this concern us? The kind of interaction that orchids exhibit with mycorrhizal fungi is very different from what we are used to, and this has important ramifications for propagation, and ultimately restoration. First of all, we have as yet not seen any evidence that orchids donate carbon to the fungus. Second, we have found that as seedlings, and in the case of the non-photosynthetic “ghost” and “phantom” orchids, orchids even extract sugar from the fungus! Third, orchids are very particular about which fungi they will associate with, and it appears that they choose fungi that are mycorrhizal, or sometimes even pathogenic, on local trees and other plants. So, these unusual plants indirectly acquire their sugar from other plants in the ecosystem. Fourth, orchids native to the northern temperate latitudes generally stay within the soil as seedlings for many years without developing any leaves, relying on mycorrhizae for complete nourishment. Finally, even mature, photosynthetic orchids choose not to break the surface and sprout leaves in

some growing seasons. This happens particularly often in lady's slipper populations. In my Midwestern study sites, I have found that lady's slippers can stay belowground like this for many years without interruption, while still growing more root and rhizome tissue. Other researchers have found very solid evidence that this "dormant" condition can last for 25 years or more. Considering that lady's slippers have very low sugar reserves, this is an amazing feat.

The key, then, to understanding what can be done to restore native orchid populations, which are in decline all over the world, is to explore this overlooked equation: orchid + appropriate fungus + appropriate conditions = successful growth.

It is an exciting topic. We are now beginning to understand the nature of this puzzling interaction, and modern scientific methods and tools, including molecular techniques, genetic sequencing, carbon-isotopes, and mathematical and statistical theory, are helping us in tackling major environmental questions. My research is an example of the conservation issues which will be investigated by Cal scientists and graduate students at the Garden's new Center for the Study of Plant Conservation.

—Richard P. Shefferson

larkspur is one of several endangered and rare California native plants the Garden is committed to helping conserve through its participation in the Center for Plant Conservation. Dr. Koontz studied the genus *Delphinium* for his dissertation project. He is now at the Center for Biodiversity of the Illinois Natural History Survey.

NEW STAFF MEMBER...

We extend a warm welcome to Ms. Leslie Wozniak who has joined the staff at the Garden in the capacity of Visitor Services Specialist. Leslie is a

long time fan of the Garden
and brings a wealth of work
skills to the new position.

Photo by Janet W
Williams

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EDUCATION AT THE GARDEN

One goal of
the Education
Program is to
encourage visitors
to discover the
Garden's magnifi-
cent collection and
to look at plants
from new perspec-
tives. While our
seasonal self-guid-
ed tours showcase
different plants in
their peak flower-
ing or display sea-
sons, other
brochures focus on
ethnobotanical
(Chinese medici-
nal herbs) or spe-
cial collections
(serpentine plants). Building on the interest generated
through our successful collaboration at last year's San
Francisco Flower and Garden Show, the Botanical Garden
and the East Bay Municipal Utility District (EBMUD)
have teamed up again, this time to develop a self-guided
tour in the Garden. This interpretive tour of the collection

focuses on plants that grow successfully in the Bay Area, but use little water.

Most people have no idea how much water their garden needs. The typical Bay Area residential landscape is irrigated enough each year to flood it six feet deep. This is at least twice as much as plants need for healthy growth. Using water-efficient plants and creative design, local gardeners can create a garden that thrives on little more than natural rainfall. Properly designed, a water-efficient garden is easier to maintain than one that is over-watered. It requires less weeding, pruning, mowing, fertilizing, and pest control. It is better adapted to fluctuations in rainfall and seasonal changes. There is no one way to create a water-efficient garden. The Botanical Garden is filled with a plethora of exciting possibilities from around the world.

This walking tour of the Garden introduces you to some of these beautiful plants that thrive in the Bay Area. California's chaparral is our local community of drought tolerant plants. The climate and plant communities in Chile's matorral, South Africa's fynbos, and the

Mediterranean maquis, with their winter rains and summer drought, are but a few of the parts of the world that have water-conserving plants similar to California's chaparral. Most of the plants on this tour have been in our collection for many years. They will give you a good idea of what that seedling in the local

nursery will look
like once it gets
established in your
garden.

This new publication is the collaboration of the Garden's horticultural, educational and communications staff working with three knowledgeable and dedicated docents — Barbara Lyss, Kathryn Welch and Alison Mills. After hours of walking through the Garden and conversations with horticulturists, Barbara, Kathy and Alison wove fascinating plant histories, horticultural information, name derivations and ethnobotanical information into stories for more than 100 plants. A lot of give and take occurred as the Garden staff vetted the information from different perspectives. Weeding out some plants that we all loved but which did not fit all the criteria was one of our biggest problems. Plants included on the tour use little water, are available (or could be available) in the horticulture trade, and are not weedy or endangered.

Ten thousand preview versions of the tour are available this Spring: in the Garden, at this year's San Francisco Flower and Garden Show and at Earth Day events. Over the next several months, Education staff will be collecting evaluations from visitors. This information will be used to improve the final version of the brochure. I invite you to come to the Garden, go on the tour, and give us your

[f0327896.pdf](#)

The Porter County

Birding Guide

Welcome to the
Casual Coast, along
the southern shore
of Lake Michigan.
Home to the

Indiana Dunes
National Lakeshore,
the Indiana Dunes
State Park and the
most diversified
flora and fauna in
the Midwest, the
dunes are comple-
mented by several
nearby inland
nature preserves.
Together, they
provide a unique
haven for birds and
birders that will
make your stay on
the Casual Coast
both enjoyable and
memorable.

Rose-breasted Grosbeak

Baltimore Oriole

Morning Doves

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Photography provided by David Oberst

“Without doubt the presence of Lake Michigan affects the movement and distribution of birdlife in the Dunes more than any other single factor. The shores of this enormous lake provide leading lines that control flight paths of numerous migrants, and the vast open waters draw legions of transitory and wintering birds. During autumn the elongate north-south boundaries of the lake become airways along which thousands of migrants navigate toward wintering areas. Southbound birds following the shores are ultimately guided into the Dunes Area, at the toe of the lake. This avian convergence at the bottom of Lake Michigan is termed the funneling effect.”

The funneling effect explains the unusually high diversity of autumn birds in northwest Indiana.

“Lake Michigan also provides two important avian habitats that are otherwise quite rare in the Midwest: the deep lake and the beach. Waters of the lake attract large numbers of bay and sea ducks, many of which are virtually unrecorded at inland sites in the Midwest. Additionally, the lake attracts a number of rare periodic transients, including the Purple Sandpiper, Red Phalarope, Pomarine Jaeger, Parasitic Jaeger, Great Black-backed Gull, Glaucous Gull, Iceland Gull, Thayer’s Gull, Sabine’s Gull, Little Gull, Black-legged Kittiwake. Extensive beaches provide resting and feeding areas for shorebirds, especially those species preferring sand rather than mudflats, e.g., Sanderling, Red Knot, and Baird’s Sandpiper.

“The deep waters of Lake Michigan also constitute a significant obstacle to migrants. During nocturnal flights many north-bound passerines overfly land’s end and daybreak finds them over the lake. When landfall is visible, they often fly directly to the shore, where they immediately land for rest and feeding.

This effect generates an anomalously high concentration of passerines in parks and woodlands immediately adjacent to the lake” (Brock 5).

1

BIRD MIGRATION TO THE DUNES

Wood Duck

2

“That most migrants fly during fair weather when trailing winds are available is well documented in ornithology textbooks. Along the shores of southern Lake Michigan this principle is most clearly evident during the fall. Bennett (1952) discovered that the number of fall passerine migrants along the Chicago lakefront tripled (compared to numbers on the day immediately prior to frontal passage) on the days immediately following passage of cold fronts.

“Similarly, the most exciting autumn birding in the Dunes occurs during or immediately following the passage of cold fronts. In addition to the passerine waves that follow the fronts, northerly winds stimulate a general longshore movement of water birds.

“On such occasions, an endless stream of loons, ducks, gulls, and terns often flows along the lakefront.”(Brock 6).

WEATHER EFFECTS OF BIRDING

“Spring hawk flights along the High Dunes must be attributed to the presence of Lake Michigan. Northbound hawks, especially buteos, en-

joy a leisurely spring migration, wafting effortlessly over the Midwest on balmy southerly winds. These soaring raptors, however, display a marked aversion to flying over large bodies of water. Consequently, upon encountering Lake Michigan the northward movement is abruptly truncated and the birds turn to a course paralleling the shoreline. Thus, the migrating hawks are concentrated in a belt immediately adjacent to the lake. In effect, therefore, the High Dunes rest directly below a narrow flight corridor that extends along the lake's southern margin." (Brock 8).

During March and April, the major flight months, good daily flights can consist of 100 to 300 birds. Fall flights are limited; the most notable species observed is the Peregrine Falcon, with flight peaks in early October.

RAPTOR FLIGHTS

Common Loon

Cooper's Hawk

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Photo by: David Oberst

BEVERLY SHORES

Whether you drive or walk, Beverly Shores will produce a number of species, seen or heard, that will delight the birder. This “island” in the National Lakeshore supports habitats such as an interdunal marsh, lake, beach and wooded dune. The interdunal marsh offers excellent habitat for passerines as well as nesting species. Beverly Drive produces many opportunities to see and hear several species of birds. Best observation time is all year.

Types of migration birds seen are loons, waterfowl and gulls. Birds seen and heard in late spring and summer are Willow Flycatcher and warblers.

COFFEE CREEK WATERSHED PRESERVE

The preserve is a 167-acre home to over 500 native plants, trees, sedges and forbs as well as over 4 miles of trails. Wetlands can be found throughout the landscape including swamps, marshes, wet prairies and fens. Birds commonly seen at Coffee Creek include several species of woodpeckers such as the Red-bellied woodpecker, Downy and Hairy Woodpeckers. Herons, hawks, and wood ducks, as well as the state endangered marsh wren can be seen in their respective habitats throughout the preserve. Bridge 5, near the southern end of the corridor is a great place to see Cardinals, Indigo Bunting and the Tufted Titmouse. From the Water Plaza, at the northern area of the preserve, Belted Kingfishers can be seen fluttering near the wetlands. Don't miss the Killdeer who often nests near Phillips Pond.

COWLES BOG

Wooded edges, savannah, marshes and wooded swamp provide ideal habitats for

Common Yellowthroat, Sora, Virginia Rail,
American Woodcock, Swamp Sparrow,
warblers, and wren. Named after the Father
of Plant Succession, Professor Henry Cowles,
this area is perfect for the nature lover in

general. For more information call 219/926-7561 ext. 225.

BIRDING SITES

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Photo by: Robert Sirko

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BIRDING SITES

PORTER BEACH HAWK WATCH

Formerly known as the Johnson Beach hawk watch, this stabilized dune allows prime viewing of several hawk flights, especially in the spring.

WEST BEACH & LONG LAKE

Following the West Beach trails which take you by the beach, an interdunal pond, and wooded dune, one may discover a Hairy Woodpecker or two and perhaps a Common Yellowthroat. Long Lake may grace one with the presence of Least Bitterns, warblers and scores of waterfowl. A parking fee is required in the summer.

INDIANA DUNES STATE PARK

Indiana Dunes State Park encompasses a variety of habitats: climax forest, savannah, marram grass covered dunes, blowouts, beaches and marshes. Several trails run through these areas, providing opportunities to view and hear field sparrows, flycatchers, thrushes, warblers, hawks, owls and more. Optimal observation areas would include the forest and the marsh-wood boundary along with trails 2 and 10. Trail 9 allows for eye level bird watching because of its higher elevation. Wilson Shelter also attracts several birds during spring migration. Entrance fee.

PORT OF INDIANA

During winter one can best observe the Horned Larks, Lapland Longspurs, Snow Buntings, Common Mergansers and bay ducks from the public access area of the Port of Indiana. On windy days, birds fly almost directly over the public access area.

SUNSET HILL FARM

COUNTY PARK

Porter County's ongoing commitment to ecological restoration, this former 235-acre dairy farm is filled with woods, meadows, and three ponds. Part-time naturalists are available during three seasons of the year to offer a wide range of

opportunities including: natural science projects on ponds, trees, birds, wildflowers or fields. With over ten miles of trails, bird watchers, nature photographers, or woods walk observers can enjoy endless outdoor opportunities. Birds commonly seen at Sunset Hill Farm include: field sparrows, flycatchers, thrushes, warblers, hawks, owls, ducks, geese and more.

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Photo by: Wendy Smith

Photo

by
: Wendy

Smith

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Smith

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BIRDING SITES

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TALTREE ARBORETUM & GARDENS

Taltree Arboretum & Gardens offers the birder a wide variety of habitats to explore. Prairie, Savanna, Woods, Wooded Edges, Swamp, Pond and open Wetland can all be easily observed at this 300+acre site. With over 4 miles of trail, Taltree is a special place to bird. For more information on special birding opportunities visit them at www.taltree.org. Entrance fee. (Closed Mondays)

ROGERS LAKEWOOD PARK

A 122-acre facility of the Valparaiso Park Department, it is home to hiking trails, a beach, fishing, boating, and swimming. Birds commonly seen at Rogers-Lakewood Park include: native waterfowl such as Canada geese and mallard ducks, herons, hawks, and common songbirds. Daily entry fees are collected from Memorial Day through Labor Day and are charged by the carload.

JASPER-PULASKI FISH AND WILDLIFE AREA

The Jasper-Pulaski Fish and Wildlife Area has long been the sight of the annual migration of Sandhill Cranes. View this awesome spectacle during the fall to see thousands of these birds as they rest from their journey and feed. Springtime also brings the cranes, but in a lesser amount. Don't forget the binoculars or a scope! During the spring and summer, the area boasts ducks, geese, and egrets that are viewable from the observation trail. Jasper-Pulaski Fish and Wildlife Area is also a public hunting area. Please check in at the headquarters to obtain information about the affected areas before setting out.

HERON ROOKERY

Observe the Great Blue Heron in the spring and summer at this mature woodland located along the Little Calumet River. Migrant warblers are present in the spring along the channel

among other species.

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ACCOMMODATIONS CHART

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PORTER COUNTY MAP

- A - Beverly Shores
- B - Coffee Creek Watershed Preserve
- C - Cowles Bog
- D - Porter Beach
- E - West Beach
- F - Indiana Dunes State Park

- G - Port of Indiana
- H - Sunset Hill Farm County Park
- I - Taltree Arboretum & Gardens
- J - Rogers Lakewood Park
- K - Jasper-Pulaski Fish & Wildlife Area
- L - Heron Rookery

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WELCOME TO THE WONDERFUL WORLD OF BIRDING!

If you like watching birds in your backyard or you want to travel the world to see all 10,000 bird species, use these ten tips to get started! You might also want to visit WildBirds.com, a great site for newer birders!

Hint #1: You need a field guide for your area. A field guide is a book with pictures of the birds and tips for identifying them.

Hint #2: You need a binocular to see the birds. (Hint: you'd need four eyes to use binoculars.)

Hint #3: You need to know what to expect in your area. Checklists of birds in your area will tell you this. See pages 13-19 for the Porter County Bird Checklist.

Hint #4: You need to be able to find the birds. To do this, you should learn about the habitat each species of bird prefers. See page 13 for Habitat information and the Bird Checklist for where to spot each species.

Hint #5: Join a group of other birders. Birders are very friendly and helpful. They are always willing to share their knowledge. We were all beginners once.

Hint #6: Try a birding trip or tour. Local bird trips are sometimes advertised in the newspapers. Check out the Birding Sites information on pages 3-5 for information on local bird treks.

Hint #7: Read about birds. There are many good magazines about birds and birding. For North American birds: Birder's World, Bird Watcher's Digest, Birding and WildBird are magazines you might like.

Hint #8: Bring the birds to you. You can attract birds to your yard with just a little work. Planting the right flowers will attract hummingbirds. Sunflower seeds will bring lots of new birds to your house. You might even want to build a bluebird house.

Hint #9: Record your bird sightings. You might want to keep a "diary" or list of the birds you see in your yard. You can also keep a list of birds you see in your town or on your vacation. Birders often keep lists for their county, state or country. The Porter County Bird Checklist can be found in this guide on pages ...

Hint #10: HAVE FUN. ASK LOTS OF QUESTIONS.
BE KIND TO BIRDS.

These hints are from the popular birding website - Birding.com

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WELCOME TO BIRDING

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PORTER COUNTY BIRDERS CHECKLIST

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HABITAT TYPES & LOCATIONS

L-LAKE; B-BEACH: Lake Michigan and its beachfront including: Beverly Shores, Indiana Dunes State Park, Indiana Dunes National Lakeshore

D-DUNES: Indiana Dunes State Park, Indiana Dunes National Lakeshore

F-FIELDS: Cultivated and roadside fields, open areas and prairies such as those found at Taltree Arboretum & Gardens, Indiana Dunes National Lakeshore, Sunset Hill Farm County Park and Coffee Creek Watershed Preserve

FL-FLIGHT: Observed in flight

M-MARSH: Areas regularly inundated by shallow water for much of the year: Interdunal marshes are found along Lake Michigan at Beverly Shores, Indiana Dunes National Lakeshore & Indiana Dunes State Park. Marshes are also found along county rivers, the most notable being the Kankakee River at the southern border of the county and at Kankakee Fish & Wildlife Area in neighboring Starke County

P-PONDS: Permanent bodies of water that include small lakes, ponds and wetlands: Long Lake, Taltree Arboretum & Gardens, Rogers Lakewood Park, Coffee Creek Watershed Preserve, Sunset Hill Farm County Park and Indiana Dunes National Lakeshore

S-SWAMPS: Wetlands that are poorly drained with trees growing throughout. There are numerous types of swamps in the county and they can be found at: Indiana Dunes State Park, Indiana Dunes National Lakeshore, Beverly Shores (along Beverly Drive), Coffee Creek Watershed Preserve, Taltree Arboretum & Gardens and the Kankakee River Floodplain

W-WOODS: Beverly Shores, Indiana Dunes National Lakeshore, Sunset Hill Farm County Park, Taltree Arboretum & Gardens, Indiana Dunes State Park, Coffee Creek Watershed Preserve

WE-WOODED EDGES: Coffee Creek Watershed Preserve, Taltree Arboretum & Gardens, Sunset Hill Farm County Park, Indiana Dunes National Lakeshore, and Indiana Dunes State Park

U-URBAN: Urban areas throughout the county

SEASONAL ABUNDANCE CODES:

A = ABUNDANT: Often observed and widespread throughout

county

C = COMMON: Frequent in appropriate habitat

U = UNCOMMON: Infrequent in appropriate habitat

R = RARE: Unlikely, but possible in county

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PORTER COUNTY BIRDERS CHECKLIST

Bird SP S F W Habitat

* State endangered

Loon & Grebes

! Common Loon C R C R L

! Pied-billed Grebe C C C R M,P

! Horned Grebe U C R L,H

Cormorants

! Double-crested C U C R L

Cormorant

Bitterns & Herons

! American Bittern* U U U R M

! Least Bittern* R R R M

! Great Blue Heron A A A R M,P

! Great Egret C U C R M

! Green Heron C C C M,P

! Black-crowned* U U U M

Night Heron

! Yellow-crowned* U U U M

Night Heron

Swans, Geese & Ducks

! Mute Swan C C C C L,P

! Tundra Swan U U R L

! Canada Goose A A A A L,M,P

! Wood Duck A A C R P,S

73

! Green-winged Teal C R U R M,P
! Black Duck C R C U L,M
! Mallard A A A C L,P,M,
! Northern Pintail U R U R M,P
! Blue-winged Teal C U C R M,P
! Northern Shoveler C R U R M,P
! Gadwall C R C R M,P
! American Wigeon C R C R M,P
! Canvasback U R R U M,P
! Redhead C R U R L,P
! Ring-necked Duck C R C R M,P
! Greater Scaup U R U U L,P
! Lesser Scaup C R C U L,P
! Black Scoter R R U R L
! White-winged Scoter R R U R L
! Common Goldeneye C R C A L
! Bufflehead C R C A L
! Hooded Merganser U R U R L
! Common Merganser U R U C L
! Red-breasted C R C U L,P

Merganser

! Ruddy Duck C R U R L,P

Vultures

! Turkey Vulture A A C R FL

Eagles & Hawks

! Bald Eagle* U R R R FL

! Northern Harrier* U R U R F

! Sharp-shinned Hawk C C C C WE,W

! Cooper's Hawk C C C C WE,W

! Northern Goshawk R R R R W

! Red-shouldered U R U R WE

Hawk

! Broad-winged Hawk U U U U W

Seasons

PORTER COUNTY BIRDERS CHECKLIST

! Red-tailed Hawk C C C C F,WE

! Rough-legged U U U U F,M

Hawk

Osprey & Falcons

! Osprey* U R U R L

! American Kestrel C C C C F

! Peregrine Falcon* U U U U FL

Quail, Pheasant, Turkey

! Northern Bobwhite U U U U F,WE

! Ring-necked U U U U F

Pheasant

! Wild Turkey U U U U F,W

Rails & Coots

! Virginia Rail* U U U U M

! Sora Rail C U U M

! Common Moorhen R R R M

! American Coot A A A U M,P,L

Crane

! Sandhill Crane C U C U F,M

(Jasper-Pulaski Site)

Plovers

! Black-bellied Plover U R U B,P

! American Golden C R U B,P

Plover

! Semipalmated Plover U R U B,P

! Piping Plover* R R B

! Killdeer A A C R M,D,F

Sandpipers & other Shorebirds

! Greater Yellowlegs U R R M,P

! Lesser Yellowlegs U U U M,P

! Solitary Sandpiper C U U M

! Spotted Sandpiper C C U M,S

! Semipalmated U R C B,P

Sandpiper

! Least Sandpiper U U U B,P

! Pectoral Sandpiper C R U M,P

! Baird's Sandpiper R U B

! Ruddy Turnstone U R U B

! Sanderling R C C B

! Dunlin U R U B,P

! Red Knot R R B

! Purple Sandpiper R R B

! Short-billed R R R P

Dowitcher

! Red Phalarope U L,B

! Common Snipe U R U R M,P

! American Woodcock C C C R S,W

Jaegers

! Parasitic Jaeger U L,B

! Pomarine Jaeger R L,B

Gulls

! Little Gull R R U R L

! Bonaparte's Gull C R C U L,B

! Laughing Gull U R R R L

! Ring-billed Gull A C A C L,B

Bird SP S F W Habitat

* State endangered

Seasons

16

PORTER COUNTY BIRDERS CHECKLIST

! Herring Gull A U A A L,B

! Thayer's Gull R R U L,B

76

! Iceland Gull U R R L
! Glaucous Gull R R U L,B
! Great Black-backed U R R U L

Gull

! Sabine's Gull U R L
! Black-legged R R U R L

Kittiwake

Terns

! Caspian Tern C U R R L,B
! Common Tern C R U L,B
! Forster's Tern U R U L,B
! Black Tern* R U R M,B

Doves

! Rock Dove C C C C U
! Mourning Dove A A A A F,W

Cuckoos

! Black-billed U U U WE

Cuckoo

! Yellow-billed U U U WE

Cuckoo

Owls

! Short-eared Owl R R R U F,M
! Great Horned Owl C C C C W
! Snowy Owl R R B
! Barred Owl C C C C S
! Northern R R W

Saw-whet Owl

! Eastern Screech C C C C W

Owl

Goatsuckers

! Common Nighthawk C A C WE,F
! Whip-poor-will C U U W

Swifts

! Chimney Swift A A A U

Hummingbirds

! Ruby-throated C C C F,WE

Hummingbird

Kingfishers

! Belted Kingfisher C C C R M,P

Woodpeckers

! Red-headed C C C C W

Woodpecker

! Red-bellied C C C C W

Woodpecker

! Yellow-bellied C R U R W

Sapsucker

! Downy Woodpecker C C C C W,WE

! Hairy Woodpecker U U U U W

! Northern Flicker C C C U W

! Pileated U U U U W

Woodpecker

Bird SP S F W Habitat

* State endangered

Seasons

17

PORTER COUNTY BIRDERS CHECKLIST

Flycatchers

! Olive-sided U R U S

Flycatcher

! Eastern Wood C C C W

78

Pewee

! Yellow-bellied U R R W

Flycatcher

! Acadian Flycatcher C C R W

! Alder Flycatcher U U U M

! Willow Flycatcher C U R M

! Least Flycatcher C R C W,WE

! Eastern Phoebe C C U F,W,WE

! Great-crested C C U W

Flycatcher

! Eastern Kingbird C C U F,M

Larks

! Horned Lark C U U F

Swallows

! Purple Martin C C C F,P

! Tree Swallow C A C F,M

! Rough-winged U U U F,M

Swallow

! Bank Swallow C C C B,D

! Cliff Swallow R R R F

! Barn Swallow C A C F

Jays & Crows

! Blue Jay A A A W,WE

! American Crow A A A ALL

Titmice

! Black-capped C C C W

Chickadee

! Tufted Titmouse C C C W

Nuthatches

! Red-breasted U R U W

Nuthatch

! White-breasted C C C W

Nuthatch

Creepers

! Brown Creeper C R C U W

Wrens

! Carolina Wren U U U U WE,U

! House Wren C C C WE,U

! Winter Wren U R U R W

! Marsh Wren* U U U M

! Sedge Wren* U R R F,M

Old World Warblers, Thrushes & Allies

! Golden-crowned C R C R W

Kinglet

! Ruby-crowned C R C R W

Kinglet

! Blue-gray C U R W

Gnatcatcher

! Eastern Bluebird C C C U F,WE

! Veery U U U W

! Gray-cheeked Thrush U U W

Bird SP S F W Habitat

* State endangered

Seasons

18

PORTER COUNTY BIRDERS CHECKLIST

! Swainson's Thrush U C W

! Hermit Thrush C C R W

! Wood Thrush U U U R W

! American Robin A A A U F,W

Thrashers

! Gray Catbird C C C WE

80

! Northern Mockingbird U U U R F,WE

! Brown Thrasher C C C R WE

Waxwings

! Cedar Waxwing C U C U W,M

Starlings

! European Starling A A A A ALL

Vireos

! White-eyed Vireo U R U W

! Solitary Vireo U R U W

! Yellow-throated Vireo C U U W

! Warbling Vireo C C U WE,P

! Philadelphia Vireo U R U W

! Red-eyed Vireo C C C W

Warblers

! Blue-winged Warbler C U U WE

! Golden-winged* R R R WE

Warbler

! Tennessee Warbler C R C W

! Nashville Warbler C R C W

! Northern Parula U R R W

Warbler

! Orange-crowned U R U W

Warble

! Yellow Warbler C C R WE,M

! Chestnut-sided C R U W,WE

Warbler

! Magnolia Warbler C R C W

! Cape May Warbler C R C W

! Yellow-rumped C R C W,M

Warbler

! Black-throated C R C W

Green Warbler

! Blackburnian C R C W

Warbler

! Prairie Warbler U U R D

! Palm Warbler C R C WE,M

! Bay-breasted C R C W

Warbler

! Blackpoll Warbler C R C W

! Cerulean Warbler C C R W

! Black and White C R C W

Warbler

! American Redstart C U C W

! Ovenbird C C U W

! Northern U R U WE,M

Waterthrush

! Louisiana U R U S

Waterthrush

! Mourning Warbler R R R WE

Bird SP S F W Habitat

* State endangered

Seasons

19

PORTER COUNTY BIRDERS CHECKLIST

! Common C C C M

Yellowthroat

! Hooded Warbler U R R S

! Wilson's Warbler C R C W

! Canada Warbler C R C W

! Yellow-breasted Chat U R R M,WE

82

Tanagers

! Scarlet Tanager C C U W

Cardinals & Buntings

! Northern Cardinal A A A A F,WE

! Rose-breasted C C C W

Grosbeak

! Indigo Bunting C C C F,WE

! Dickcissel U U U F

Sparrows

! Eastern Towhee C C C R WE

! Tree Sparrow C C C F,WE

! Chipping Sparrow C C C F,WE,D

! Field Sparrow C C C U F,D,M

! Vesper Sparrow U U U F,D

! Savannah Sparrow U U U F,D

! Grasshopper Sparrow U U U F

! Fox Sparrow C C R WE

! Song Sparrow C C C U M,WE

! Lincoln's Sparrow U U W

! Swamp Sparrow C C C U M,S

! White-throated C C R WE

Sparrow

! White-crowned C C R WE

Sparrow

! Dark-eyed Junco C C A WE

! Lapland Longspur R R R B

! Snow Bunting R U U F,B

Blackbirds & Orioles

! Bobolink C C R F

! Red-winged Blackbird A A A U F,M,S

! Eastern Meadowlark C C C F

! Western Meadowlark R R R F

! Yellow-headed R R R M

Blackbird*

! Rusty Blackbird U R U R S

! Common Grackle C C C U M,F

! Brown-headed C C C U W, WE

Cowbird

! Baltimore Oriole C C U W, WE

! Orchard Oriole U U U W, WE

Finches

! Purple Finch U U U U W

! House Finch A A A A U

! Common Redpoll R R U WE

! Pine Siskin R R U WE

! American Goldfinch A A A A F, WE, U

! Evening Grosbeak R R U WE

Old World Sparrows

! House Sparrow A A A A U

Bird SP S F W Habitat

* State endangered

Seasons

The Porter County Convention, Recreation & Visitors Commission (PCCRVC) would like to give special thanks to David Oberst, Director of Education and Naturalist at Taltree Arboretum & Gardens, and Taltree board member, Laurie Eberhardt, Ph.D., for their help in creating this guide. The PCCRVC is truly grateful for their help.

TALTREE ARBORETUM & GARDENS:

“A SPECIAL PLACE TO BIRD”

Taltree offers the birder a wide variety of habitat at one location: Prairie, Savanna, Woods, Wooded Edges, Swamp, Pond and open Wetland, can all be easily observed at this 300+acre site. More than 60 species of birds have been identified on Taltree’s property. The Bluebird Trail derives its name from the numerous Bluebird nesting boxes along its route, Eastern Bluebirds are a common site at Taltree. The trail directs visitors along the perimeter of the prairie in an effort to reduce disturbance to wildlife and restore habitat to natural nesting conditions. As a result grassland-nesting birds, such

as the Bobolink, that need a large area of undisturbed habitat for survival have abundantly returned. This trail also traverses a 7-acre open wetland, which holds abundant migratory waterfowl in the spring. Wood Ducks are a common site as they utilize nesting boxes in the wetland. In 2002, a Hooded Merganser successfully nested at Taltree. Migrating spring warblers can be viewed in abundance along the Heron Pond Woodlands and Owl Trails. Taltree is an excellent site to view raptors. Red-tailed, Cooper's and Sharp-shinned Hawks are year round residents. During the winter and early spring months a pair of Northern Harrier Hawks regularly patrol the open space at the arboretum. Wild Turkey, Ring-necked Pheasant and Bobwhite Quail are also present. Other birds of particular interest are American Woodcocks, Eastern Meadowlarks, Dickcissels, Indigo Buntings, Rose-breasted Grosbeaks, Baltimore Orioles and the Savanna and Grasshopper Sparrows. Taltree Arboretum & Gardens: A Natural Inspiration....

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- United States. *Birds of the Indiana Dunes National Lakeshore*. (Revised Edition) Indiana Dunes National Lakeshore, 1991.

Special thanks to Ken Brock for permission to use information about birding in the Indiana Dunes directly from his book, *Birds of the Indiana Dunes*.

ACKNOWLEDGEMENTS

There's still more...

to see and do at the Casual Coast. There are several more specialty guides, each geared to people's special interests!

Produced by the Porter County Convention,
Recreation, & Visitor Commission

800 Indian Boundary Road Chesterton, Indiana 46304
219/926-2255 • 800/283-8687

www.indianadunes.com • www.casualcoast.com

Call, write, or visit our website to

request your free specialty guides.

-----METADATA-----

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xmpTPg:NPages: 23

Appendix C – E Mails

good pics

E-Mail From ben@example.org;
E-Mail To jdoe@example.com;
Subject good pics
Date Received 2005-02-09 11:08:01
Date Sent 2005-02-09 11:08:01
Message (Plaintext)
Hi thought you'd like these

enjoy

Attachments

Three images, image 16-18 in Appendix A

How to Identify Birds

E-Mail From mailinglist@birds.example.com;
E-Mail To jdoe@example.com;
Subject How to Identify Birds

Date Received 2005-02-09 11:08:01
Date Sent 2005-02-09 11:08:01
Message (Plaintext) How to Identify Birds

Are you amazed at how quickly birders can identify birds? Actually, it's just like getting to know your human neighbors. When you move into a new neighborhood everyone is a stranger, but soon you learn to tell people apart as you unconsciously catalog their characteristics. Their habits, shape, styles of walking, and "habitats" become familiar enough that you can recognize each neighbor immediately, even at a distance.

Paying attention to individual differences can help you identify birds, too. You can recognize many birds simply by noting their shapes, even if seen only in silhouette. Other useful characteristics are a bird's posture, size (easiest to judge if you use familiar birds as a size reference), flight pattern and/or head-on flight profile, and the kind of habitat in which the bird was seen.

Start by learning to identify general groups of birds- warblers, flycatchers, hawks, owls, wrens- whose members all share certain similarities. As your observation skills improve, familiarize yourself with the field marks- colored or patterned areas on the bird's body, head, and wings- that help distinguish species.

some more good ones

E-Mail From ben@example.org;
E-Mail To jdoe@example.com;
Subject some more good ones
Date Received 2005-02-09 11:08:01
Date Sent 2005-02-09 11:08:01
Message (Plaintext) Thanks for the pics you sent me here are some I really like
Attachments
5 images, images 17 and 19-22 in Appendix A

expensive birds

E-Mail From ben@example.org;
E-Mail To jdoe@example.com;
Subject expensive birds
Date Received 2005-02-09 11:08:01
Date Sent 2005-02-09 11:08:01
Message (Plaintext) A young woman was walking past a pet shop and saw an exotic, white cockatoo for sale. The price was \$6000. She entered the store and asked the clerk why the bird was so expensive. The clerk told her that the bird spoke 6 different languages. "Does it speak English?" asked the woman. "Of course it does!" said the clerk.
The woman thought about her mother who was multi-lingual, a bit of a recluse and lived all alone. She decided to purchase the bird and send it to her mother as a companion. She paid for the bird and made arrangements for it to be delivered. The following day, the woman telephoned her mother. "Mama, did you like the cockatoo that I sent you?" "Oh it was delicious!" she replied. "Mama, what do you mean delicious?" "I made soup out of it."

"But mama, that bird spoke six different languages!"

"Oh dear! Why didn't it say something?"

Appendix D – Browser History

John Doe Firefox History

	Name	URL Address	First Visit	Last Visit
1		http://www.google.co.uk/cxfer?c=PREF%3D:TM%3D1106584100:S%3DmHsHVdKldLZ9yvE_&prev=/firefox%3Fclient%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official	24/01/2005 16:28	24/01/2005 16:28
2	Mozilla Firefox Start Page	http://www.google.co.uk/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	02/02/2005 14:10
3		http://start.mozilla.org/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	03/02/2005 12:21
4		http://www.google.com/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	03/02/2005 12:21
5	Mozilla Firefox Start Page	http://www.google.co.uk/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	09/02/2005 11:26
6		http://www.google.com/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	09/02/2005 11:26
7		http://www.google.com/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	02/02/2005 14:10
8		http://start.mozilla.org/firefox?client=firefox-a&rls=org.mozilla:en-GB:official	24/01/2005 16:28	09/02/2005 11:26
9	About Mozilla	http://www.mozilla.org/about/	24/01/2005 16:28	24/01/2005 16:28
10	Mozilla Products	http://www.mozilla.org/products/	24/01/2005 16:28	24/01/2005 16:28
11	Thunderbird - Reclaim Your Inbox	http://www.mozilla.org/products/thunderbird/	24/01/2005 16:28	24/01/2005 16:28
12		http://download.mozilla.org/?product=thunderbird&os=win&lang=en-US	24/01/2005 16:28	24/01/2005 16:28
13		ftp://ftp.scarlet.be/pub/mozilla.org/thunderbird/releases/1.0/win32/en-US/Thunderbird%20Setup%201.0.exe	24/01/2005 16:28	24/01/2005 16:28
14		http://r.office.microsoft.com/r/rldOfficeUpdate?clid=1033	25/01/2005 11:15	25/01/2005 11:15

15		http://office.microsoft.com/officeupdate	25/01/2005 11:15	25/01/2005 11:15
16	Microsoft Office Downloads Home Page	http://office.microsoft.com/en-gb/officeupdate/default.aspx	25/01/2005 11:15	25/01/2005 11:15
17		http://office.microsoft.com/officeupdate/	25/01/2005 11:15	25/01/2005 11:15
18	Microsoft Office Online: Internet Explorer version 5.0 or later is required	http://office.microsoft.com/en-gb/FX010532551033.aspx	25/01/2005 11:15	25/01/2005 11:15
19		http://office.microsoft.com/officeupdate/maincatalog.aspx?l1c=en-gb	25/01/2005 11:15	25/01/2005 11:15
20		http://office.microsoft.com/search/redirect.aspx?AssetID=ES790020331033&Origin=HH010704921033&CTT=5	25/01/2005 11:15	25/01/2005 11:15
21	Microsoft Office Downloads: Office Download Catalog	http://office.microsoft.com/en-gb/officeupdate/CD010200271033.aspx	25/01/2005 11:15	25/01/2005 11:15
22		http://office.microsoft.com/search/redirect.aspx?AssetID=CD010200271033&CTT=5&Origin=HA010704291033	25/01/2005 11:15	25/01/2005 11:15
23	Google Search: birds	http://www.google.co.uk/search?client=firefox-a&rls=org.mozilla%3Aen-GB%3Aofficial_s&hl=en&q=birds&meta=&btnG=Google+Search	02/02/2005 14:11	02/02/2005 14:11
24	The Life of Birds	http://www.pbs.org/lifeofbirds/	02/02/2005 14:11	02/02/2005 15:11
25	The Life of Birds Songs	http://www.pbs.org/lifeofbirds/songs/index.html	02/02/2005 14:12	02/02/2005 15:11
26		http://www.googleadservices.com/pagead/adclick?adurl=http://www.amazon.co.uk/exec/obidos/external-search%3Ftag%3Drosco%3Dsolutions%26keyword%3Dbirds%26mode%3Dbooks-uk&sa=L&ai=BW2r0o98AQvKADLuuQbHk9JwHhtWFCMrNsqsBt7bCBaCNbAEGAQgtlQoBTgAQIoWLS5oAHVtMD_A6oBHG9yZy5tb3p pbGxhOmVuLUdCOm9mZmljaWFsX3PIAQE&num=4	02/02/2005 14:14	02/02/2005 14:14
27	Amazon.co.uk: Search Results Books: birds	http://www.amazon.co.uk/exec/obidos/external-search/026-5665785-2744400?tag=rosco%3Dsolutions&keyword=birds&mode=books-uk	02/02/2005 14:14	02/02/2005 14:14

28		http://www.google.co.uk/pagead/clk?adurl=http://www.amazon.co.uk/exec/obidos/external-search%3Ftag%3Drosco solutions%26keyword%3Dbirds%26mode%3Dbooks-uk&sa=l&ai=BW2r0o98AQvKADLuuQbHk9JwHhtWFCMrNsqsBt7bCBaCNbHAEGAQgtlQoBTgAQIoWLSL5oAHVtMD_A6oBHG9yZy5tb3ppbGxhOmVuLUdCOm9mZmljaWFsX3PIAQE&num=4	02/02/2005 14:14	02/02/2005 14:14
29		http://www.amazon.co.uk/exec/obidos/external-search?tag=rosco solutions&keyword=birds&mode=books-uk	02/02/2005 14:14	02/02/2005 14:14
30	Amazon.co.uk: Books: Garden Birds (Collins Gem S.)	http://www.amazon.co.uk/exec/obidos/ASIN/0007176147/qid=1107353690/sr=2-1/ref=sr_2_11_1/026-5665785-2744400	02/02/2005 14:14	02/02/2005 14:14
31	Amazon.co.uk: Books: The Secret Lives of Garden Birds	http://www.amazon.co.uk/exec/obidos/ASIN/0713666161/qid=1107353690/sr=2-3/ref=sr_2_11_3/026-5665785-2744400	02/02/2005 14:15	02/02/2005 14:15
32	Google Search: bird wallpaper	http://www.google.co.uk/search?q=bird+wallpaper&sourceid=mozilla-search&start=0&start=0&ie=utf-8&oe=utf-8&client=firefox-a&rls=org.mozilla:en-GB:official	02/02/2005 14:15	02/02/2005 14:15
33	Free Bird Wallpaper - Bald Eagle Albatross Owl Falcon 1024x768	http://www.naturewallpaper.net/birds_L.html	02/02/2005 14:15	02/02/2005 14:15
34		http://as.casalemedia.com/s?s=53524&u=http%3A//www.naturewallpaper.net/birds_L.html&f=2&id=5780266264.517584	02/02/2005 14:15	02/02/2005 14:15
35	3-Home	http://isg10.casalemedia.com/V2/40842/43608/	02/02/2005 14:15	02/02/2005 14:15
36		http://pagead2.googlesyndication.com/pagead/ads?client=ca-pub-0241683974610684&dt=1107353756202&lmt=1107353751&format=468x60_as&output=html&url=http%3A%2F%2Fwww.naturewallpaper.n	02/02/2005 14:15	02/02/2005 14:15

		et%2Fbirds_L.html&ref=http%3A%2F%2Fwww.google.co.uk%2Fsearch%3Fq%3Dbird%2Bwallpaper%26sourceid%3Dmozilla-search%26start%3D0%26start%3D0%26ie%3Dutf-8%26oe%3Dutf-8%26client%3Dfirefox-a%26rls%3Dorg.mozilla%3Aen-GB%3Aofficial&u_h=768&u_w=1024&u_ah=738&u_aw=1024&u_cd=24&u_his=5&u_nplug=5&u_nmime=13		
37		http://asg36.casalemedia.com/s?s=53524&u=http%3A/www.naturewallpaper.net/birds_L.html&f=2&id=5780266264.517584	02/02/2005 14:15	02/02/2005 14:15
38		http://isg10.casalemedia.com/V2/40842/43608	02/02/2005 14:15	02/02/2005 14:15
39	bald_eagle3.jpg	http://www.naturewallpaper.net/birdsLpages/image4.html	02/02/2005 14:16	02/02/2005 14:16
40	Winner !!!!	http://media.fastclick.net/w/get.media?t=n&sid=11194&m=1&f=b&v=1.4&c=1495&r=http%3A/www.naturewallpaper.net/birds_L.html&d=f	02/02/2005 14:16	02/02/2005 14:16
41		http://pagead2.googlesyndication.com/pagead/ads?client=ca-pub-0241683974610684&dt=1107353782360&imt=1107353781&format=468x60_as&output=html&url=http%3A%2Fwww.naturewallpaper.net%2FbirdsLpages%2Fimage4.html&ref=http%3A%2Fwww.naturewallpaper.net%2Fbirds_L.html&u_h=768&u_w=1024&u_ah=738&u_aw=1024&u_cd=24&u_his=6&u_nplug=5&u_nmime=13	02/02/2005 14:16	02/02/2005 14:16
42	Winner !!!!	http://media.fastclick.net/w/get.media?t=n&sid=11194&m=1&f=b&v=1.4&c=7262&r=http%3A/www.naturewallpaper.net/birds_L.html&d=f	02/02/2005 14:18	02/02/2005 14:18
43	snow_geese.jpg	http://www.naturewallpaper.net/birdsLpages/image21.html	02/02/2005 14:18	02/02/2005 14:18
44		http://pagead2.googlesyndication.com/pagead/ads?client=c	02/02/2005 14:18	02/02/2005 14:18

		a-pub-0241683974610684&dt=1107353925746&imt=1107353925&format=468x60_as&output=html&url=http%3A%2F%2Fwww.naturewallpaper.net%2FbirdsLpages%2Fimage21.html&ref=http%3A%2F%2Fwww.naturewallpaper.net%2Fbirds_L.html&u_h=768&u_w=1024&u_ah=738&u_aw=1024&u_cd=24&u_his=6&u_nplug=5&u_nmime=13		
45		http://pagead2.googlesyndication.com/pagead/adclick?sa=L&ai=Bv4uhneAAQrfmAqX-QcmCpMoK0MuACPLnwJwBwl23AcC4AhACGAlg05r2ASgCQloWSlo5sgEXd3d3Lm5hdHVyZXdhbGxwYXBlici5uZXS6AQk0Njh4NjBfYXPIAQHaAStodHRwOi8vd3d3Lm5hdHVyZXdhbGxwYXBlici5uZXQvYmlyZHNfTC5odG1s&num=2&adurl=http://uk.shop.com/amos/cc/main/ccn_search_catsa/st/bald%2Beagle/sy/products/ccsyn/518/SourcelD/30&client=capub-0241683974610684	02/02/2005 14:19	02/02/2005 14:19
46		http://pagead2.googlesyndication.com/pagead/iclk?sa=l&ai=Bv4uhneAAQrfmAqX-QcmCpMoK0MuACPLnwJwBwl23AcC4AhACGAlg05r2ASgCQloWSlo5sgEXd3d3Lm5hdHVyZXdhbGxwYXBlici5uZXS6AQk0Njh4NjBfYXPIAQHaAStodHRwOi8vd3d3Lm5hdHVyZXdhbGxwYXBlici5uZXQvYmlyZHNfTC5odG1s&num=2&adurl=http://uk.shop.com/amos/cc/main/ccn_search_catsa/st/bald%2Beagle/sy/products/ccsyn/518/SourcelD/30&client=capub-0241683974610684	02/02/2005 14:19	02/02/2005 14:19
47	SHOP.COM - Search results for bald eagle	http://uk.shop.com/amos/cc/main/ccn_search_catsa/st/bald+eagle/sy/products/ccsyn/518/SourcelD/30	02/02/2005 14:19	02/02/2005 14:19

48	SHOP.COM - Bird Safari - Bird Watcher's Paradise from Choices Direct - Movies is available in Documentary	http://amos.shop.com/amos/cc/main/catalog/pcd/7107298/prd/10187717/ccsyn/518/_x_/Choices-Direct--Movies-Bird-Safari--Bird-Watcher's-Paradise-(VIDEO)	02/02/2005 14:20	02/02/2005 14:20
49	Google Search: bird stories	http://www.google.co.uk/search?hl=en&client=firefox-a&rls=org.mozilla%3Aen-GB%3Aofficial&q=bird+stories&btnG=Search&meta=	02/02/2005 14:22	02/02/2005 14:22
50	Untitled Document	http://z.about.com/0/ip/496/0.htm	02/02/2005 14:22	02/02/2005 14:26
51	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=14;pc=1;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;dcopt=ist;sz=728x90;ord=1522EMf0O20SA1B0c43	02/02/2005 14:22	02/02/2005 14:22
52		http://z.about.com/0/ip/512/6.htm	02/02/2005 14:22	02/02/2005 14:26
53		http://z.about.com/0/ip/512/12.htm	02/02/2005 14:22	02/02/2005 14:26
54	Google Offers	http://z.about.com/5/ad/go.htm?gs=birding	02/02/2005 14:22	02/02/2005 14:26
55		http://z.about.com/0/ip/417/5.htm?CDN=hobbies	02/02/2005 14:22	02/02/2005 14:26
56	Bird Stories and Tales	http://birding.about.com/od/storie1/	02/02/2005 14:22	02/02/2005 14:22
57	Audience Match Data Agent	http://z.about.com/5/ad/am.htm?pid=about	02/02/2005 14:22	02/02/2005 14:26
58	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=14;pc=1;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;sz=728x91;ord=1522EMf0O20SA1B0c43	02/02/2005 14:22	02/02/2005 14:22
59	Current Headlines	http://z.about.com/6/o/b.htm?gs=birding	02/02/2005 14:22	02/02/2005 14:26
60		http://z.about.com/7/o/cw.htm?gs=birding	02/02/2005 14:23	02/02/2005 14:26
61	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=2;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;dcopt=ist;sz=728x90;ord=1522EN50L20SA0d1843	02/02/2005 14:23	02/02/2005 14:23
62	Related Articles	http://z.about.com/5/o/c.htm?gs=birding	02/02/2005 14:23	02/02/2005 14:26

63	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=2;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;sz=120x600;ord=1522EN50L20SA0d1843	02/02/2005 14:23	02/02/2005 14:23
64	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=2;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;sz=728x91;ord=1522EN50L20SA0d1843	02/02/2005 14:23	02/02/2005 14:23
65	Wings of Terror - avian humor article for people interesting in birdwatching and others interested in birds	http://birding.about.com/library/weekly/aa102598.htm	02/02/2005 14:23	02/02/2005 14:23
66	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=3;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522ENr0N20SA0T0C668	02/02/2005 14:23	02/02/2005 14:23
67	Alphabetical Index of Birds	http://birding.about.com/library/blalphyeofbird.htm	02/02/2005 14:23	02/02/2005 14:23
68		http://clk.about.com/?zi=18/yV&sdn=hobbies_birding&tm=51&f=00&su=p512.6.140.ip_p512.12.140.ip_&tt=0&zu=http%3A//birding.about.com/library/blalphyeofbird.htm	02/02/2005 14:23	02/02/2005 14:23
69	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=3;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;u=0mfh7s21101oie;dcopt=ist;sz=728x90;ord=1522ENr0N20SA0T0C668	02/02/2005 14:23	02/02/2005 14:23
70	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=3;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;u=0mfh7s21101oie;sz=120x600;ord=1522ENr0N20SA0T0C668	02/02/2005 14:23	02/02/2005 14:23

71	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=4;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522EOJ0E20SA2k0X896	02/02/2005 14:24	02/02/2005 14:24
72		http://clk.about.com/?zi=18/yV&sdn=hobbies_birding&tm=20&f=00&su=p512.6.140.ip_p512.12.140.ip_&tt=0&zu=http%3A//birding.about.com/library/blhousespecs.htm	02/02/2005 14:24	02/02/2005 14:24
73	Specs for Building Birdhouses and for use in Bird House Plans	http://birding.about.com/library/blhousespecs.htm	02/02/2005 14:24	02/02/2005 14:24
74	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=4;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;u=0mfh7s21101oie;dcopt=ist;sz=728x90;ord=1522EOJ0E20SA2k0X896	02/02/2005 14:24	02/02/2005 14:24
75	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=4;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;u=0mfh7s21101oie;sz=120x600;ord=1522EOJ0E20SA2k0X896	02/02/2005 14:24	02/02/2005 14:24
76	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=14;pc=5;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;u=0mfh7s21101oie;dcopt=ist;sz=468x60;ord=1522EOV0N20SA0G0P124	02/02/2005 14:24	02/02/2005 14:24
77	How to Build Bird Houses and Nest Boxes	http://birding.about.com/od/buildhouses/	02/02/2005 14:24	02/02/2005 14:24
78	Click Here	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=14;pc=5;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=3;r=0;u=0mfh7s21101oie;sz=336x280;ord=1522EOV0N20SA0G0P124	02/02/2005 14:24	02/02/2005 14:24

79	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=14;pc=5;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522EOV0N20SA0G0P124	02/02/2005 14:24	02/02/2005 14:24
80		http://birding.about.com/cs/buildhouses/index.htm	02/02/2005 14:24	02/02/2005 14:24
81	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=2;pc=6;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522EOb0P20SA3M0A64	02/02/2005 14:24	02/02/2005 14:24
82	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=2;pc=6;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=3;r=0;u=0mfh7s21101oie;dcopt=ist;sz=336x280;ord=2522EOb0P20SA3M0A64	02/02/2005 14:24	02/02/2005 14:24
83	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=2;pc=6;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;u=0mfh7s21101oie;sz=120x600;ord=1522EOb0P20SA3M0A64	02/02/2005 14:24	02/02/2005 14:24
84	Free Feeder and Birdhouse Plans Index	http://birding.about.com/cs/birdhousesfeeders/a/buildingindex.htm	02/02/2005 14:24	02/02/2005 14:24
85	vonage_vpart_gothr ubiz_336	http://view.atdmt.com/VON/iview/btcxvon0260000015von/direct/01?click=http://n479ad.doubleclick.net/click%3Bh=v4 3213 3 0 %2a q%3B12023409%3B0-0%3B0%3B759672-2%3B4252-336 280%3B8795737 8813633 1%3Bu%3D0mfh7s21101oie%3B%7Eaopt%3D0 ff373b%3B%7Esscs%3D%3f	02/02/2005 14:24	02/02/2005 14:24
86	Birding and Birdwatching - Build a Bluebird Nest Box for Wild Birds	http://birding.about.com/library/weekly/aa010703a.htm	02/02/2005 14:24	02/02/2005 14:24

87	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=7;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;u=0mfh7s21101oie;sz=160x600;ord=1522EOv0I20SA2e0F480	02/02/2005 14:24	02/02/2005 14:24
88	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=7;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522EOv0I20SA2e0F480	02/02/2005 14:24	02/02/2005 14:24
89	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=7;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;u=0mfh7s21101oie;dcopt=ist;sz=728x90;ord=1522EOv0I20SA2e0F480	02/02/2005 14:24	02/02/2005 14:24
90	Birding and Birdwatching - Painting or Staining Bird Houses and Feeders	http://birding.about.com/library/blhousefeederpaint.htm	02/02/2005 14:26	02/02/2005 14:26
91	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=8;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=4;r=0;u=0mfh7s21101oie;sz=728x91;ord=1522EQi0B20SA1x0N820	02/02/2005 14:26	02/02/2005 14:26
92	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=8;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=2;r=0;u=0mfh7s21101oie;sz=160x600;ord=1522EQi0B20SA1x0N820	02/02/2005 14:26	02/02/2005 14:26
93	Click Here!	http://n479ad.doubleclick.net/adi/abt.hobbies/hobbies_birding;svc=;site=birding;t=0;pc=8;fd=0;fs=0;a=;sbj=pid512;kw=;chan=hobbies;syn=about;tile=1;r=0;u=0mfh7s21101oie;dcopt=ist;sz=728x90;ord=1522EQi0B20SA1x0N820	02/02/2005 14:26	02/02/2005 14:26

94		http://clk.about.com/?zi=18/yW&sdn=hobbies_birding&tm=107&f=00&su=p512.6.140.ip_p512.12.140.ip_&tt=0&zu=http%3A//birding.about.com/library/blhousefeederpaint.htm	02/02/2005 14:26	02/02/2005 14:26
95		http://pagead2.googlesyndication.com/pagead/clk?sa=l&ai=BiW5-JeMAQviVF17YQa3yjJsK_PzSBq7nwZQBwl23AaCzlxABGAEgvKX3ASglQIoW SJQ5mAGcSsqoBEHByaW1IZGhX2JpcmRpbmeyerARFiaXJkaW5nLmFib3V0LmNvbcgBAoBN2h0dHA6Ly9iaXJkaW5nLmFib3V0LmNvbS9saWJyYXJ5L2Js aG91c2VmZWVkZXJwYWludC5odG0&num=1&adurl=http://www.haiths.com&client=ca-primedia-basic_js	02/02/2005 14:27	02/02/2005 14:27
96		http://pagead2.googlesyndication.com/pagead/adclick?sa=L&ai=BiW5-JeMAQviVF17YQa3yjJsK_PzSBq7nwZQBwl23AaCzlxABGAEgvKX3ASglQIoW SJQ5mAGcSsqoBEHByaW1IZGhX2JpcmRpbmeyerARFiaXJkaW5nLmFib3V0LmNvbcgBAoBN2h0dHA6Ly9iaXJkaW5nLmFib3V0LmNvbS9saWJyYXJ5L2Js aG91c2VmZWVkZXJwYWludC5odG0&num=1&adurl=http://www.haiths.com&client=ca-primedia-basic_js	02/02/2005 14:27	02/02/2005 14:27
97	Haith's Wild Bird Foods & Bill Oddie's tips and advice also bird feeder, peanut, birdseed, bird, garden birds, wildlife, nest box, bird table, birdcare, binocular, bird bath, squirrel, robin, books, videos & wildflower seeds,	http://www.haiths.com/	02/02/2005 14:27	02/02/2005 14:27
98	Haith's Wild Bird Foods & Bill Oddie's tips and advice also bird feeder, peanut, birdseed, bird, garden birds, wildlife, nest box, bird table, birdcare, binocular, bird bath, squirrel, robin,	http://www.haiths.com/Features.asp?lookup=0&brand=1&article_id=features_1&customer_id=PAA0219022305524FFFKRSRZKXZGRWU	02/02/2005 14:28	02/02/2005 14:28

	books, videos & wildflower seeds,			
99	The Birds (1963)	http://www.imdb.com/title/tt0056869/	02/02/2005 14:40	02/02/2005 14:40
100		http://www.imdb.com/google/box?num=3;k=power100-withsc;placement=midbucket;rnd=45504;sid=7845;referer=%2Ftitle%2Ftt0056869%2F;slot=GOOGLE	02/02/2005 14:40	02/02/2005 14:40
101	Trailers for The Birds (1963)	http://www.imdb.com/title/tt0056869/trailers	02/02/2005 14:40	02/02/2005 14:40
102		http://www.imdb.com/google/box?num=3;k=power100-withsc;placement=midbucket;rnd=83932;sid=8055;referer=%2Ftitle%2Ftt0056869%2Ftrailers;slot=BOTTOM_CENT	02/02/2005 14:40	02/02/2005 14:40
103		http://rcm.amazon.com/e/cm?f=ifr&t=imdb-rec-banner-20&l=st1&search=widescreeen&mode=dvd&p=13&o=1	02/02/2005 14:40	02/02/2005 14:40
104		http://www.imdb.com/rg/title-tease/trailers/title/tt0056869/trailers	02/02/2005 14:40	02/02/2005 14:40
105		http://www.imdb.com/google/box?num=5;k=maxww-sky;placement=2;rnd=872225854982059300;sid=-123;referer=maxww;slot=TOP_RHS	02/02/2005 14:40	02/02/2005 14:40
106		http://www.imdb.com/rg/TITLETRA_VIDDET//http://videodetective.com/home.asp?PublishedID=1843	02/02/2005 14:41	02/02/2005 14:41
107	VideoDetective.com - Movie Trailers, Entertainment Previews, Streaming Video Samples.	http://videodetective.com/home.asp?PublishedID=1843	02/02/2005 14:41	02/02/2005 14:41
108		http://videodetective.com/test.asp?List=307629 838353&PublishedID=1843&ListID=&New=&CustomerId=97135&refreshed=TRUE	02/02/2005 14:41	02/02/2005 14:41
109		http://videodetective.com/test.asp?List=307629 838353&PublishedID=1843&ListID=&New=&CustomerId=97135	02/02/2005 14:41	02/02/2005 14:41
110		http://videodetective.com/player.asp?PublishedID=1843&List=307629 838353&CustomerId=97135	02/02/2005 14:41	02/02/2005 14:41

111	Video Detective Player	http://videodetective.com/choosespeed.asp?BrowserSupportActiveX=false&ActiveXPlayerInstalled=false&plugin=true&List=307629 838353&PublishedID=1843&ListID=&New=&CustomerId=97135&refreshed=TRUE	02/02/2005 14:42	02/02/2005 14:42
112		http://videodetective.com/Playlist.asp?	02/02/2005 14:42	02/02/2005 14:42
113		http://videodetective.com/titleinfo.asp	02/02/2005 14:42	02/02/2005 14:42
114	Videodetective.com - Player	http://videodetective.com/player.asp?PublishedId=1843&List=307629 838353&CustomerId=97135&videokbrate=300	02/02/2005 14:42	02/02/2005 14:42
115		http://videodetective.com/play.asp?New=True&List=307629 838353&PublishedId=1843&VideoKbrate=300&ListID=&CustomerId=97135&HasPlayer=	02/02/2005 14:42	02/02/2005 14:42
116	BBC NEWS News Front Page	http://news.bbc.co.uk/	02/02/2005 14:44	02/02/2005 14:44
117		http://news.bbc.co.uk/nol/ukfs_news/hi/front_page/ticker.stm	02/02/2005 14:44	02/02/2005 14:44
118	BBC NEWS Politics Blair defends house arrest plans	http://news.bbc.co.uk/1/hi/uk_politics/4227829.stm	02/02/2005 14:44	02/02/2005 14:44
119	BBC Media Selector	http://www.bbc.co.uk/mediaselector/check/nolavconsole/ukfs_news/hi?redirect=fs.stm&news=1&bbram=1&bbwm=1&nbram=1&nbwm=1&nol_storyid=4229711	02/02/2005 14:45	02/02/2005 14:45
120		http://news.bbc.co.uk/1/hi/uk_politics/4227829.stm#	02/02/2005 14:45	02/02/2005 14:45
121	BBC NEWS UK Blair defends house arrest plans	http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/newsid_4220000/newsid_4229700/bb_rm_4229711.stm	02/02/2005 14:45	02/02/2005 14:45
122	Untitled	http://news.bbc.co.uk/nolavconsole/shared/player/player.stm?clipurl=http://news.bbc.co.uk/media/news_web/video/40545000/bb/40545855_bb_16x9.ram&bw=bb	02/02/2005 14:45	02/02/2005 14:45
123	Untitled	http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/uk/bb_rm_promo.stm	02/02/2005 14:45	02/02/2005 15:04
124		http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/front_page/bb_rm_promo.stm	02/02/2005 14:45	02/02/2005 14:45

125	Untitled	http://news.bbc.co.uk/nolavconsole/shared/player/player.stm?title=Blair%20defends%20house%20arrest%20plans&clipurl=http://news.bbc.co.uk/media/news_web/video/4078600/bb/40786999_bb_16x9.ram&cs=news	02/02/2005 14:45	02/02/2005 15:04
126		http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/front_page/bb_rm_banner.stm	02/02/2005 14:45	02/02/2005 14:45
127	BBC Media Selector	http://www.bbc.co.uk/cgi-perl/mediaselector/app.pl?action=sc&alreadySeen=1&m=%2Fnolavconsole%2Fukfs_news%2Fhi&q=nbram%3D1%26redirect%3Dfs.stm%26news%3D1%26nbwm%3D1%26bbwm%3D1%26bbbram%3D1%26nol_storyid%3D4229711&quality=HiQuality&player=RealPlayer&frmSubmit=OK	02/02/2005 14:45	02/02/2005 14:45
128		http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/uk/bb_rm_banner.stm	02/02/2005 14:45	02/02/2005 15:04
129		http://www.bbc.co.uk/mediaselector/check/nolavconsole/ukfs_news/hi?redirect=fs.stm&nbram=1&news=1&bbwm=1&nbwm=1&bbbram=1&nol_storyid=4229711&checkedBandwidth=bb&checkedMedia=ram&alreadySeen=1	02/02/2005 14:45	02/02/2005 14:45
130	BBC News Player	http://news.bbc.co.uk/nolavconsole/ukfs_news/hi/bb_rm_fs.stm?checkedBandwidth=bb&nbram=1&checkedMedia=ram&news=1&nbwm=1&bbwm=1&bbbram=1&nol_storyid=4229711	02/02/2005 14:45	02/02/2005 14:45
131	BBC NEWS Scotland	http://news.bbc.co.uk/1/hi/scotland/default.stm	02/02/2005 15:11	02/02/2005 15:11
132		http://www.pbs.org/lifeofbirds/songs/kakapo.ram	02/02/2005 15:11	02/02/2005 15:11
133		http://www.pbs.org/lifeofbirds/songs/dawn.ram	02/02/2005 15:12	02/02/2005 15:12
134	Google Search: windows gnupg	http://www.google.co.uk/search?q=windows+gnupg&sourceid=mozilla-search&start=0&start=0&ie=utf-8&oe=utf-8&client=firefox-	02/02/2005 15:57	02/02/2005 15:57

		a&rls=org.mozilla:en-GB:official		
135		http://www.gnupg.org/download.html	02/02/2005 15:57	02/02/2005 15:57
136	Download - GnuPG.org	http://www.gnupg.org/download/	02/02/2005 15:57	02/02/2005 15:57
137	WinPT	http://www.winpt.org/	02/02/2005 15:58	02/02/2005 15:58
138		http://www.stud.uni-hannover.de/~twoaday/winpt.html	02/02/2005 15:58	02/02/2005 15:58
139	Google Search: windows gnupg	http://www.google.co.uk/search?q=windows+gnupg&hl=en&lr=&client=firefox-a&rls=org.mozilla:en-GB:official&start=10&sa=N	02/02/2005 15:58	02/02/2005 15:58
140	GnuPG Windows	http://openpgp.privetee.org/wingpg.html	02/02/2005 15:58	02/02/2005 15:58
141	Microsoft Application Search	http://shell.windows.com/fileassoc/0409/xml/redir.asp?Ext=pdf	02/02/2005 16:51	02/02/2005 16:51
142		http://shell.windows.com/fileassoc/0409/SearchEngine.asp	02/02/2005 16:51	02/02/2005 16:51
143	Adobe Reader - Download	http://www.adobe.com/products/acrobat/readstep2.html	02/02/2005 16:52	02/02/2005 16:52
144	Adobe Reader - Download Thank you	http://www.adobe.com/products/acrobat/readstep_servfile.html?hasjavascript=1&esdcaneused=1&esdcanhandle=0&language=English&platform=WinXP&connectionspeed=broadband&option=full&nodlm=1&x=27&y=5	02/02/2005 16:52	02/02/2005 16:52
145		http://ardownload.adobe.com/pub/adobe/reader/win/7x/7.0/enu/AdobeRdr70_en_u_full.exe	02/02/2005 16:53	02/02/2005 16:53
146	Google Search: bird mating calls	http://www.google.co.uk/search?client=firefox-a&rls=org.mozilla%3Aen-GB%3Aofficial_s&hl=en&q=bird+mating+calls&meta=&btnG=Google+Search	03/02/2005 12:21	03/02/2005 12:21
147	Chickadee Karaoke	http://whyfiles.org/s horties/104chick_se x/	03/02/2005 12:21	03/02/2005 12:21
148	Google Image Search	http://www.google.co.uk/imghp?hl=en&tab=wi&client=firefox-a&rls=org.mozilla:en-GB:official_s&q=	03/02/2005 14:59	03/02/2005 14:59
149	Google Search: young chicks	http://images.google.co.uk/images?client=firefox-a&rls=org.mozilla%3Aen-GB%3Aofficial_s&q=young+chicks&hl=	03/02/2005 14:59	03/02/2005 14:59

		en&btnG=Google+Search		
150	Google Image Result for http://freespace.virgin.net/cobber.budgies/images/babyscot_vyoung.jpg	http://images.google.co.uk/imgres?imgurl=http://freespace.virgin.net/cobber.budgies/images/babyscot_vyoung.jpg&imgrefurl=http://freespace.virgin.net/cobber.budgies/stories/scottie_a.html&h=353&w=350&sz=38&tbnid=4jg3dcJYAelJ:&tbnh=116&tbnw=115&start=5&prev=/images%3Fq%3Dyoung%2Bchicks%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DG	03/02/2005 14:59	03/02/2005 14:59
151		http://images.google.co.uk/imgres?imgurl=http://freespace.virgin.net/cobber.budgies/images/babyscot_vyoung.jpg&imgrefurl=http://freespace.virgin.net/cobber.budgies/stories/scottie_a.html&h=353&w=350&sz=38&tbnid=4jg3dcJYAelJ:&tbnh=116&tbnw=115&prev=/images%3Fq%3Dyoung%2Bchicks%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DG&frame=small	03/02/2005 14:59	03/02/2005 14:59
152	Scottie's Baby Pictures - 1	http://freespace.virgin.net/cobber.budgies/stories/scottie_a.html	03/02/2005 14:59	03/02/2005 14:59
153	Google Image Result for http://www.insaneanimals.com/items/177.jpg	http://images.google.co.uk/imgres?imgurl=http://www.insaneanimals.com/items/177.jpg&imgrefurl=http://www.insaneanimals.com/funny-animals/177.html%3Fsort%3Ddate&h=290&w=350&sz=10&tbnid=97SA3_pw84UJ:&tbnh=96&tbnw=116&start=6&prev=/images%3Fq%3Dyoung%2Bchicks%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DG	03/02/2005 15:01	03/02/2005 15:01
154		http://images.google.co.uk/imgres?imgur	03/02/2005 15:01	03/02/2005 15:01

		l=http://www.insaneanimals.com/items/177.jpg&imgrefurl=http://www.insaneanimals.com/funny-animals/177.html%3Fsort%3Ddate&h=290&w=350&sz=10&tbnid=97SA3_pw84UJ:&tbnh=96&tbnw=116&prev=/images%3Fq%3Dyoung%2Bchicks%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DG&frame=small		
155	Young Chicks - Funny Animals, Pets, Cats and Dogs Pictures - Insane Animals	http://www.insaneanimals.com/funny-animals/177.html?sorth=sort=date	03/02/2005 15:01	03/02/2005 15:01
156		http://pagead2.googleadsyndication.com/pagead/ads?client=ca-pub-2066660325911329&dt=1107442877733&format=120x600_as&output=html&url=http%3A%2F%2Fimages.google.co.uk%2Fimgres%3Fimgurl%3Dhttp%3A%2F%2Fwww.insaneanimals.com%2Fitems%2F177.jpg%26imgrefurl%3Dhttp%3A%2F%2Fwww.insaneanimals.com%2Ffunny-animals%2F177.html%253Fsort%253Ddate%26h%3D290%26w%3D350%26sz%3D10%26tbnid%3D97SA3_pw84UJ%3A%26tbnh%3D96%26tbnw%3D116%26start%3D6%26prev%3D%2Fimages%253Fq%253Dyoung%252Bchicks%2526hl%253Den%2526lr%253D%2526client%253Dfirefox-a%2526rls%253Dorg.mozilla%3Aen-GB%3Aofficial_s%2526sa%253DG&u_h=768&u_w=1024&u_ah=738&u_aw=1024&u_cd=24&u_his=4&u_nplug=9&u_nmime=21	03/02/2005 15:01	03/02/2005 15:01
157		http://media.fastclick.net/w/get.media?t=n&sid=13470&m=3&f=b&v=1.4&c=7098&r=http%3A//images.google.co.uk/im	03/02/2005 15:01	03/02/2005 15:01

		<p>gres%3Fimgurl%3D http%3A//www.insa neanimals.com/item s/177.jpg%26imgref url%3Dhttp%3A//w ww.insaneanimals.c om/funny- animals/177.html%2 53Fsort%253Ddate %26h%3D290%26 w%3D350%26sz%3 D10%26tbnid%3D9 7SA3_pw84UJ%3A %26tbnh%3D96%2 6tbnw%3D116%26s tart%3D6%26prev% 3D/images%253Fq %253Dyoung%252 Bchicks%2526hl%2 53Den%2526lr%25 3D%2526client%25 3Dfirefox- a%2526rls%253Dor g.mozilla%3Aen- GB%3Aofficial_s%2 526sa%253DG&d=f</p>		
158	Google Search: young chicks	<p>http://images.google .co.uk/images?q=yo ung+chicks&hl=en& lr=&client=firefox- a&rls=org.mozilla:e n- GB:official_s&start= 20&sa=N</p>	03/02/2005 15:01	03/02/2005 15:01
159		<p>http://www.cvm.okst ate.edu/instruction/k ocan/ostrich/ostbk2 b2.htm</p>	03/02/2005 15:02	03/02/2005 15:02
160		<p>http://images.google .co.uk/imgres?imgur l=http://www.cvm.ok state.edu/instruction /kocan/disk2/image s/img0056.jpg&imgr efurl=http://www.cv m.okstate.edu/instru ction/kocan/ostrich/ ostbk2b2.htm&h=76 8&w=512&sz=108& tbnid=xe9EaVDii1E J:&tbnh=141&tbnw= 94&prev=/images% 3Fq%3Dyoung%2B chicks%26start%3D 20%26hl%3Den%2 6lr%3D%26client% 3Dfirefox- a%26rls%3Dorg.mo zilla:en- GB:official_s%26sa %3DN&frame=smal l</p>	03/02/2005 15:02	03/02/2005 15:02
161	Google Image Result for http://www.cvm.okst ate.edu/instruction/k ocan/disk2/images/i mg0056.jpg	<p>http://images.google .co.uk/imgres?imgur l=http://www.cvm.ok state.edu/instruction /kocan/disk2/image s/img0056.jpg&imgr efurl=http://www.cv m.okstate.edu/instru ction/kocan/ostrich/ ostbk2b2.htm&h=76 8&w=512&sz=108& tbnid=xe9EaVDii1E J:&tbnh=141&tbnw=</p>	03/02/2005 15:02	03/02/2005 15:02

		94&start=24&prev=/images%3Fq%3Dyoung%2Bchicks%26start%3D20%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DN		
162	Google Search: young chicks	http://images.google.co.uk/images?q=young+chicks&hl=en&lr=&client=firefox-a&rls=org.mozilla:en-GB:official_s&start=40&sa=N	03/02/2005 15:03	03/02/2005 15:03
163		http://images.google.co.uk/imgres?imgurl=http://people.cornell.edu/pages/sah67/chicks2.jpg&imgrefurl=http://people.cornell.edu/pages/sah67/summer.html&h=450&w=600&sz=39&tbnid=7SZWO4nGCbYJ:&tbnh=99&tbnw=132&prev=/images%3Fq%3Dyoung%2Bchicks%26start%3D40%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DN&frame=small	03/02/2005 15:03	03/02/2005 15:03
164	Eco Gallery '04	http://people.cornell.edu/pages/sah67/summer.html	03/02/2005 15:03	03/02/2005 15:03
165	Google Image Result for http://people.cornell.edu/pages/sah67/chicks2.jpg	http://images.google.co.uk/imgres?imgurl=http://people.cornell.edu/pages/sah67/chicks2.jpg&imgrefurl=http://people.cornell.edu/pages/sah67/summer.html&h=450&w=600&sz=39&tbnid=7SZWO4nGCbYJ:&tbnh=99&tbnw=132&start=59&prev=/images%3Fq%3Dyoung%2Bchicks%26start%3D40%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-GB:official_s%26sa%3DN	03/02/2005 15:03	03/02/2005 15:03
166	Google Search: bird screensavers	http://www.google.co.uk/search?client=firefox-a&rls=org.mozilla%3Aen-GB%3Aofficial_s&hl=en&q=bird+screensavers&meta=&btnG=Google+Search	09/02/2005 11:27	09/02/2005 11:27

167	Screensavers	http://www.traveltext.com/screen.asp?SN=6245300&LS=0&S=1	09/02/2005 11:27	09/02/2005 11:27
168	Screensavers	http://www.traveltext.com/screen.asp?SN=6245300&LS=0&S=1	09/02/2005 11:27	09/02/2005 11:27
169		http://www.traveltext.com/downloads/screensavers/birds.zip	09/02/2005 11:27	09/02/2005 11:27

John Doe Internet Explorer

	URL Address	Modified Time	Accessed Time
1.	http://office.microsoft.com/_Services/Ont/oo.js	12/11/2004 02:18	25/01/2005 11:33
2.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_LeftMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
3.	http://switchboard.real.com/player/?cd=firstrun_acct&loader=2.0&L=en&PV=6.0.12.1053		
4.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/tgar.js?1/24/2005%208:40:03%20AM	11/06/2004 02:51	24/01/2005 16:40
5.	http://office.microsoft.com/en-gb/FX010354621033.aspx	25/01/2005 11:33	25/01/2005 11:33
6.	http://office.microsoft.com/officeupdate/disk.gif	12/11/2004 02:46	25/01/2005 11:26
7.	http://home.real.com/signin/common/log/log.html?toolbar=Google&action=istoolbarregistered%20error&code=3&offer=20050119_4&bundled=true&configcount=1&distcode=NSP01D&build=6.0.12.1053&overinstall=&L=en&prefix=TOOLBAR_OFFER&md=1107356243619	07/06/2004 16:26	02/02/2005 14:57
8.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/tgar.js?1/24/2005%208:15:21%20AM	11/06/2004 02:51	24/01/2005 16:15
9.	?CodeDownloadErrorLogIname={00EF2092-6AC5-47C0-BD25-CF2D5D657FEB}	02/02/2005 14:57	02/02/2005 14:57
10.	http://office.microsoft.com/officeupdate/arrowright.gif	12/11/2004 02:46	25/01/2005 11:26
11.	http://v5.windowsupdate.microsoft.com/library/toolbar/3.0/images/banners/windows_masthead_ltr.gif	11/06/2004 02:51	24/01/2005 16:40
12.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/redirect.js?1/24/2005%208:15:21%20AM	21/10/2004 04:14	24/01/2005 16:15
13.	https://account.real.com/act/intro/msg.html?msg=frweur	11/07/2002 00:43	02/02/2005 15:04
14.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/survey.js?632421512871551603	02/12/2004 03:52	24/01/2005 16:15
15.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/icon_wu_installnow_16x.gif	11/06/2004 02:51	24/01/2005 16:40
16.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/commontop.js?1/24/2005%208:15:21%20AM	22/11/2004 19:21	24/01/2005 16:15
17.	http://office.microsoft.com/officeupdate/timer.gif	12/11/2004 02:46	25/01/2005 11:26
18.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/toc_endnode.gif	11/06/2004 02:51	24/01/2005 16:40
19.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/webcomtop.js?1/24/2005%208:15:21%20AM	06/08/2004 00:03	24/01/2005 16:15
20.	http://office.microsoft.com/officeupdate/bang.gif	12/11/2004 02:46	25/01/2005 11:26
21.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_Info.gif	11/06/2004 02:51	24/01/2005 16:40
22.	http://mozilla.org/firefox		
23.	http://office.microsoft.com/officeupdate/catalog/SiteBaselines.xml?632422172995214127	06/01/2005 15:45	25/01/2005 11:26
24.	http://office.microsoft.com/_Services/Ont/images/footerMSLogo.gif	16/12/2003 20:59	25/01/2005 11:33
25.	http://office.microsoft.com/global/images/default.aspx?assetid=ZA011153081033	29/12/2004 01:54	25/01/2005 11:33
26.	http://v5.windowsupdate.microsoft.com/v5consumer/resultslist.aspx?ln=en-us&id=612e66c8b	24/01/2005 16:16	24/01/2005 16:16
27.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_RightTop_Green.gif	11/06/2004 02:51	24/01/2005 16:40
28.	http://office.microsoft.com/officeupdate/catalog/xml/1033/FGC11_0.xml?632422172995214127	06/01/2005 15:56	25/01/2005 11:26
29.	http://office.microsoft.com/global/images/default.aspx?assetid=HX010492821033		25/01/2005 11:16
30.	http://v5.windowsupdate.microsoft.com/v5consumer/splash.aspx?page=0&ln=en-us	24/01/2005 16:39	24/01/2005 16:40
31.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/resultslist.js?1/24/2005%208:16:07%20AM	06/08/2004 00:03	24/01/2005 16:16
32.	http://www.mozilla.org/css/cavendish/content.css	08/12/2004 03:02	24/01/2005 16:23
33.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_RightMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
34.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/spupdateids.js?1/24/2005%208:15:21%20AM	01/09/2004 00:33	24/01/2005 16:15
35.	http://v5.windowsupdate.microsoft.com/v5consumer/footer.aspx?ln=en-us	24/01/2005 16:39	24/01/2005 16:40
36.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/Banners/en/Hdr_ExpressInstall.jpg	11/06/2004 02:51	24/01/2005 16:41

37.	http://c.microsoft.com/trans_pixel.aspx?TYPE=SSPV&SOURCE=OFFICE&guid=1f4fc18c-f71e-47fb-8fc9-612f8ee59c61&URI=/en-GB/home/office/FX010329501033.aspx		25/01/2005 11:16
38.	http://office.microsoft.com/_Services/Ont/images/topnav2m.gif	03/12/2003 22:22	25/01/2005 11:33
39.	http://v5.windowsupdate.microsoft.com/library/toolbar/3.0/text.aspx?TQ%3d%3d&f=FFFFFF&b=6487DB&font=Microsoft+Logo+95%2c+13pt&w=105&h=29&a=0&l=0&v=0&c=DeMqBqIN3ORi7XLcgI%2fVxqO1O14%3d	24/01/2005 16:19	24/01/2005 16:40
40.	http://office.microsoft.com/_Services/Ont/images/topnav1m.gif	03/12/2003 22:21	25/01/2005 11:33
41.	http://i.i.com.com/cnwk.1d/i/cobd/ec/EC_nov04_39x72.gif	28/01/2004 23:37	24/01/2005 16:21
42.	http://v5.windowsupdate.microsoft.com/library/toolbar/3.0/css.aspx?c=v5consumer/Config/en/shell.config	24/01/2005 15:59	24/01/2005 16:40
43.	http://c.microsoft.com/trans_pixel.aspx?TYPE=SSPV&SOURCE=OFFICE&guid=1f4fc18c-f71e-47fb-8fc9-612f8ee59c61&URI=/en-GB/officeupdate/maincatalog.aspx		25/01/2005 11:26
44.	http://office.microsoft.com/en-gb/officeupdate/default.aspx	25/01/2005 10:54	25/01/2005 11:16
45.	http://office.microsoft.com/_Services/Ont/images/ONTLogo.gif	20/03/2003 04:52	25/01/2005 11:33
46.	http://www.mozilla.org/images/download_back.gif	31/08/2004 22:36	24/01/2005 16:23
47.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/tqar.js	11/06/2004 02:51	24/01/2005 16:41
48.	http://office.microsoft.com/_Services/Ont/images/cg2057.gif	02/01/2004 20:21	25/01/2005 11:33
49.	http://images.real.com/pics/real/common/bull_tri.gif	01/12/2001 23:25	02/02/2005 15:04
50.	http://office.microsoft.com/_Services/Ont/images/ONLItemBk.gif	15/09/2003 19:51	25/01/2005 11:33
51.	http://v5.windowsupdate.microsoft.com/v5consumer/default.aspx?In=en-us	24/01/2005 16:40	24/01/2005 16:40
52.	http://office.microsoft.com/_Services/Ont/en-US/Ont.css	12/11/2004 02:18	25/01/2005 11:33
53.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/survey.js?632421527970738072	02/12/2004 03:52	24/01/2005 16:40
54.	http://office.microsoft.com/global/images/default.aspx?AssetID=ZA011357821033	24/06/2004 03:50	25/01/2005 11:16
55.	http://www.mozilla.org/products/thunderbird/	01/01/2005 05:17	24/01/2005 16:23
56.	http://windowsupdate.microsoft.com/	07/11/2003 22:20	24/01/2005 16:39
57.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/toc.js	15/06/2004 21:48	24/01/2005 16:40
58.	http://home.real.com/signin/3.0/loader.html?cd=firstrun_acct&loader=2.0&LI=en&PV=6.0.12.1053	02/02/2005 14:57	02/02/2005 14:57
59.	http://office.microsoft.com/_Services/Ont/images/ONLPICellSpr2.gif	30/12/2002 21:13	25/01/2005 11:33
60.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/css/hcp.css	11/06/2004 02:51	24/01/2005 16:41
61.	http://home.real.com/signin/common/log/log.html?configcount=1&distcode=NSP01D&build=6.0.12.1053&overinstall=&LI=en&prefix=FIRSTRUN&md=1107356239593	07/06/2004 16:26	02/02/2005 14:57
62.	http://office.microsoft.com/officeupdate/check.gif	12/11/2004 02:46	25/01/2005 11:26
63.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/css/toc.css	11/06/2004 02:51	24/01/2005 16:40
64.	http://office.microsoft.com/_Services/Ont/images/ONTLogoLt.gif	20/03/2003 04:52	25/01/2005 11:26
65.	http://v5.windowsupdate.microsoft.com/SelfUpdate/AU/x86/XP/en/wusetup.cab?0501241640	04/08/2004 00:14	24/01/2005 16:40
66.	http://www.mozilla.org/images/header_br.gif	31/08/2004 22:36	24/01/2005 16:23
67.	http://office.microsoft.com/_Services/Ont/images/TBGradient.gif	05/12/2002 16:10	25/01/2005 11:27
68.	http://www.mozilla.org/images/product-firefox-screen.png	13/01/2005 22:47	24/01/2005 16:21
69.	http://office.microsoft.com/search/redirect.aspx?AssetID=ES790020331033&Origin=HH010704921033&CTT=5		
70.	http://office.microsoft.com/officeupdate/wizardUpdate.aspx	25/01/2005 11:10	25/01/2005 11:26
71.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_BottomMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
72.	http://office.microsoft.com/global/images/default.aspx?assetid=ZA011035021033	13/01/2005 01:57	25/01/2005 11:16
73.	http://v5.windowsupdate.microsoft.com/v5consumer/resultslist.aspx?In=en-us&id=060cadd56	24/01/2005 16:40	24/01/2005 16:40
74.	http://www.mozilla.org/products/firefox/	24/01/2005 08:32	24/01/2005 16:21
75.	http://office.microsoft.com/en-gb/FX010355751033.aspx	25/01/2005 10:26	25/01/2005 11:25
76.	http://office.microsoft.com/_Services/Ont/images/topnav3r.gif	03/12/2003 22:23	25/01/2005 11:33
77.	http://switchboard.real.com/player/mktg.html?DC=NSP01D&optin=true&country=gb&language=en-gb&icon=tiscali		
78.	http://realguide.real.com/4plus/main_.js	18/04/2002 20:08	02/02/2005 15:04
79.	http://i.real.com/pics/real/intro/bttn_disabled.gif	31/08/2001 20:49	02/02/2005 15:04

80.	http://www.mozilla.org/css/base/template.css	24/09/2004 02:03	24/01/2005 16:23
81.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/survey.js?632421512922307396	02/12/2004 03:52	24/01/2005 16:15
82.	http://i.real.com/pics/real/intro/bttn_enabled.gif	31/08/2001 20:49	02/02/2005 15:04
83.	http://office.microsoft.com/_Services/Ont/images/BulletLN.gif	05/03/2003 05:45	25/01/2005 11:16
84.	http://www.mozilla.org/products/firefox/featuring-flash.gif	08/11/2004 01:18	24/01/2005 16:21
85.	http://www.real.com/4plus/trinity_.css	19/06/2004 01:05	02/02/2005 15:04
86.	http://office.microsoft.com/global/images/1ptrans_ZA06047535.gif	20/12/2004 20:29	25/01/2005 11:16
87.	http://www.mozilla.org/images/ff_shirt.jpg	21/09/2004 15:20	24/01/2005 16:21
88.	http://office.microsoft.com/officeupdate/catalog/xml/1033/INFPXSN11_1033.xml?632422172995214127	06/01/2005 15:56	25/01/2005 11:26
89.	http://office.microsoft.com/global/images/default.aspx?AssetID=ZA011357811033	24/06/2004 03:50	25/01/2005 11:16
90.	http://www.mozilla.org/images/shop_back.gif	21/09/2004 15:20	24/01/2005 16:23
91.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/Hdr_Shrt_Right.jpg	11/06/2004 02:51	24/01/2005 16:41
92.	http://images.real.com/pics/space.gif	24/05/2001 21:25	02/02/2005 15:04
93.	http://i.real.com/g/pics/space.gif	09/02/2001 23:44	02/02/2005 15:04
94.	http://office.microsoft.com/officeupdate/maincatalog.aspx?lc=en-gb	25/01/2005 10:34	25/01/2005 11:26
95.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/Banners/en/Hdr_InstallBasket.jpg	11/06/2004 02:51	24/01/2005 16:41
96.	http://office.microsoft.com/officeupdate/catalog/xml/1033/OLKPTR_0.xml?632422172995214127	06/01/2005 15:56	25/01/2005 11:17
97.	http://c.microsoft.com/trans_pixel.asp?source=v5.windowsupdate&TYPE=Pv&p=v5consumer_splash.aspx&r=http%3A/v5.windowsupdate.microsoft.com/v5consumer/default.aspx%3Fln%3Den-us		24/01/2005 16:40
98.	http://www.mozilla.org/images/moz_shirt.jpg	31/08/2004 22:36	24/01/2005 16:23
99.	http://www.linorg.usp.br/mozilla/firefox/releases/1.0/win32/en-GB/Firefox%20Setup%201.0.exe	11/11/2004 19:26	24/01/2005 16:19
100.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/toc_expanded.gif	11/06/2004 02:51	24/01/2005 16:41
101.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_bg_LeftMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
102.	http://www.mozilla.org/products/	01/01/2005 05:17	24/01/2005 16:23
103.	http://v5.windowsupdate.microsoft.com/v5consumer/resultslist.aspx?ln=en-us&id=1&LinkId=SOFTWARE&ToIndex=e4f1a332	24/01/2005 16:41	24/01/2005 16:41
104.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_bg_RightMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
105.	http://office.microsoft.com/_Services/Ont/images/WWGlobe.gif	14/01/2004 21:37	25/01/2005 11:33
106.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_bg_BottomMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
107.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_Button_Middle.gif	11/06/2004 02:51	24/01/2005 16:40
108.	http://64.12.168.243/pub/mozilla.org/thunderbird/releases/1.0/win32/en-US/Thunderbird%20Setup%201.0.exe	06/12/2004 15:37	24/01/2005 16:24
109.	http://office.microsoft.com/global/images/default.aspx?assetid=ZA011708901033	13/01/2005 01:57	25/01/2005 11:16
110.	http://www.mozilla.org/products/firefox/featuring-java.gif	08/11/2004 01:18	24/01/2005 16:21
111.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/toc_collapsed.gif	11/06/2004 02:51	24/01/2005 16:40
112.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/resultslist.js?1/24/2005%208:41:09%20AM	06/08/2004 00:03	24/01/2005 16:41
113.	?CodeDownloadErrorLogIname={3E68E405-C6DE-49FF-83AE-41EE9F4C36CE}	25/01/2005 11:16	25/01/2005 11:16
114.	http://www.mozilla.org/products/firefox/featuring-realplayer.gif	08/11/2004 01:18	24/01/2005 16:21
115.	http://c.microsoft.com/trans_pixel.asp?source=v5.windowsupdate&TYPE=Pv&p=v5consumer_resultslist.aspx&r=http%3A/v5.windowsupdate.microsoft.com/v5consumer/toc.aspx%3Fln%3Den-us		24/01/2005 16:41
116.	http://www.real.com/intro/index_upsell_manager.html?DC=NSP01D&optin=true&country=gb&language=en-gb&icon=tiscali&L=en&PBR=10485800	20/01/2005 00:26	02/02/2005 15:04
117.	http://www.mozilla.org/css/base/content.css	10/01/2005 19:47	24/01/2005 16:23
118.	http://www.mozilla.org/products/firefox/featuring-shockwave.gif	08/11/2004 01:18	24/01/2005 16:21
119.	http://www.mozilla.org/images/header_logo.gif	31/08/2004 22:36	24/01/2005 16:23
120.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/resultslist.js?1/24/2005%208:40:14%20AM	06/08/2004 00:03	24/01/2005 16:40
121.	http://c.microsoft.com/trans_pixel.aspx?TYPE=SSPV&SOURCE=OFFICE&guid=1f4fc18c-f71e-47fb-8fc9-612f8ee59c61&URL=/en-gb/home/office/FX010355751033.aspx		25/01/2005 11:25
122.	http://www.mozilla.org/css/cavendish/template.css	08/12/2004 03:02	24/01/2005 16:23
123.	http://i.real.com/pics/real/intro/bttn_over.gif	31/08/2001 20:49	02/02/2005 15:04

124.	http://office.microsoft.com/_Services/Ont/images/ONLHorzSprTail.gif	05/12/2002 16:10	25/01/2005 11:33
125.	http://office.microsoft.com/officeupdate/catalog/ActiveBundles.xml?632422172995214127	06/01/2005 15:45	25/01/2005 11:26
126.	http://office.microsoft.com/_Services/Ont/images/foote rl.gif	16/12/2003 21:30	25/01/2005 11:33
127.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/info_16x.gif	11/06/2004 02:51	24/01/2005 16:22
128.	http://office.microsoft.com/officeupdate/content/opuc.c ab	29/08/2003 20:59	25/01/2005 11:17
129.	http://office.microsoft.com/en-gb/FX010329501033.aspx	25/01/2005 09:23	25/01/2005 11:16
130.	http://office.microsoft.com/_Services/Ont/images/bullet l.gif	05/03/2003 04:42	25/01/2005 11:27
131.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/Hdr_Shrt_Middle.jpg	11/06/2004 02:51	24/01/2005 16:41
132.	http://www.mozilla.org/images/body_back.gif	31/08/2004 22:36	24/01/2005 16:23
133.	http://v5.windowsupdate.microsoft.com/v5consumer/s plash.aspx?page=3&cpuClass=x86&aenabled=false &ln=en-us	24/01/2005 16:40	24/01/2005 16:40
134.	http://c.microsoft.com/trans_pixel.asp?source=v5.wind owsupdate&TYPE=PV&p=v5consumer_InstallStatus.a spx&r=http%3A/v5.windowsupdate.microsoft.com/v5c onsumer/default.aspx%3Fln%3Den-us		24/01/2005 16:22
135.	http://c.microsoft.com/trans_pixel.asp?TYPE=SSPV& SOURCE=OFFICE&guid=1f4fc18c-f71e-47fb-8fc9- 612f8ee59c61&URL=/en-GB/officeupdate/default.aspx		25/01/2005 11:16
136.	http://c.microsoft.com/trans_pixel.asp?TYPE=SSPV& SOURCE=OFFICE&guid=1f4fc18c-f71e-47fb-8fc9- 612f8ee59c61&URL=/en- GB/home/office/FX010354621033.aspx		25/01/2005 11:33
137.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/News_bg_RightTop.gif	11/06/2004 02:51	24/01/2005 16:40
138.	http://c.microsoft.com/trans_pixel.asp?source=v5.wind owsupdate&TYPE=PV&p=v5consumer_default.aspx		24/01/2005 16:40
139.	http://office.microsoft.com/officeupdate/wizardFrame.a spx	25/01/2005 10:57	25/01/2005 11:26
140.	http://www-config.strath.ac.uk/proxy.config		03/02/2005 11:50
141.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/News_bg_RightBottom.gif	11/06/2004 02:51	24/01/2005 16:40
142.	http://download.mozilla.org/?product=firefox&os=win&l ang=en-GB		
143.	http://office.microsoft.com/_Services/ont/images/WWWG lobe.gif	14/01/2004 21:37	25/01/2005 11:26
144.	http://www.mozilla.org/products/thunderbird/award_sof tpedapick.gif	19/12/2004 22:17	24/01/2005 16:23
145.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/News_bg_TopMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
146.	http://office.microsoft.com/global/images/default.aspx? assetid=ZA011158451033	13/01/2005 01:57	25/01/2005 11:16
147.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/AU_bg_LeftTop_Green.gif	11/06/2004 02:51	24/01/2005 16:40
148.	http://www.mozilla.org/images/product-thunderbird- screen.png	13/01/2005 22:47	24/01/2005 16:23
149.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/Hdr_Tall_Right.jpg	11/06/2004 02:51	24/01/2005 16:40
150.	http://www.mozilla.org/images/product-camino.png	31/08/2004 22:36	24/01/2005 16:23
151.	http://download.mozilla.org/?product=thunderbird&os= win&lang=en-US		
152.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/Banners/en/Hdr_Welcome.jpg	11/06/2004 02:51	24/01/2005 16:40
153.	http://www.mozilla.org/images/product-calendar.png	31/08/2004 22:36	24/01/2005 16:23
154.	http://www.real.com/intro/index.html?DC=NSP01D&op tin=true&country=gb&language=en-gb&icon=tiscali	12/03/2003 22:26	02/02/2005 15:04
155.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/arrow.gif	11/06/2004 02:51	24/01/2005 16:40
156.	http://www.mozilla.org/images/product-mozilla.png	31/08/2004 22:36	24/01/2005 16:23
157.	http://www.mozilla.org/images/header_tl.gif	31/08/2004 22:36	24/01/2005 16:23
158.	http://v5.windowsupdate.microsoft.com/		
159.	http://v5.windowsupdate.microsoft.com/v5consumer/d efault.aspx	24/01/2005 16:39	24/01/2005 16:40
160.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/AU_ShieldYellow.gif	11/06/2004 02:51	24/01/2005 16:40
161.	http://www.mozilla.org/images/product-firefox.png	16/11/2004 21:32	24/01/2005 16:23
162.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/js/redirect.js?1/24/2005%208:40:03%20AM	21/10/2004 04:14	24/01/2005 16:40
163.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/AU_bg_LeftTop.gif	11/06/2004 02:51	24/01/2005 16:40
164.	http://www.mozilla.org/images/product- thunderbird.png	31/08/2004 22:36	24/01/2005 16:23
165.	http://v5.windowsupdate.microsoft.com/v5consumer/to c.aspx?ln=en-us	24/01/2005 16:39	24/01/2005 16:40
166.	http://www.mozilla.org/css/print.css	21/11/2004 11:02	24/01/2005 16:23
167.	http://www.mozilla.org/images/header_tab.gif	31/08/2004 22:36	24/01/2005 16:26
168.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/js/commontop.js?1/24/2005%208:40:03%20AM	22/11/2004 19:21	24/01/2005 16:40
169.	http://v5.windowsupdate.microsoft.com/v5consumer/s hared/images/AU_bg_RightTop.gif	11/06/2004 02:51	24/01/2005 16:40

170.	http://www.mozilla.org/images/product-bugzilla.png	31/08/2004 22:36	24/01/2005 16:23
171.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/content.js	03/08/2004 07:00	24/01/2005 16:41
172.	http://office.microsoft.com/_Services/Ont/images/topnav2r.gif	03/12/2003 22:27	25/01/2005 11:33
173.	http://office.microsoft.com/global/images/default.aspx?AssetID=ZA010499831033	21/01/2005 01:57	25/01/2005 11:33
174.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/webcomtop.js?1/24/2005%208:40:03%20AM	06/08/2004 00:03	24/01/2005 16:40
175.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_Button_Right.gif	11/06/2004 02:51	24/01/2005 16:40
176.	http://mozilla.mirrors.tds.net/pub/mozilla.org/firefox/releases/1.0/win32/en-GB/Firefox%20Setup%201.0.exe	11/11/2004 19:26	24/01/2005 16:22
177.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/css/content.css	11/06/2004 02:51	24/01/2005 16:41
178.	http://www.mozilla.org/images/key-point_back.gif	31/08/2004 22:36	24/01/2005 16:23
179.	http://office.microsoft.com/_Services/Ont/images/ONL_BulCol.gif	30/12/2002 21:13	25/01/2005 11:33
180.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/spupdateids.js?1/24/2005%208:40:03%20AM	01/09/2004 00:33	24/01/2005 16:40
181.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/Hdr_Tall_Middle.gif	11/06/2004 02:51	24/01/2005 16:40
182.	http://v5.windowsupdate.microsoft.com/v5consumer/InstallStatus.aspx?page=0&ln=en-us		24/01/2005 16:22
183.	http://office.microsoft.com/_Services/Ont/images/RghtArrBlk.gif	18/09/2003 20:08	25/01/2005 11:16
184.	http://www.mozilla.org/images/header_tr.gif	31/08/2004 22:36	24/01/2005 16:23
185.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/Banners/en/Hdr_CustomInstall.jpg	11/06/2004 02:51	24/01/2005 16:41
186.	http://www.mozilla.org/images/header_bl.png	04/01/2005 17:02	24/01/2005 16:23
187.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_bg_LeftTop.gif	11/06/2004 02:51	24/01/2005 16:40
188.	http://v5.windowsupdate.microsoft.com/v5consumer/mstoolbar.aspx?ln=en-us	24/01/2005 16:40	24/01/2005 16:40
189.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_Button_Left.gif	11/06/2004 02:51	24/01/2005 16:40
190.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/ok.gif	11/06/2004 02:51	24/01/2005 16:22
191.	http://v5.windowsupdate.microsoft.com/v5consumer/blank.aspx		24/01/2005 16:41
192.	http://i.real.com/pics/real/intro/btn_down.gif	31/08/2001 20:49	02/02/2005 15:04
193.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_TopMiddle_Green.gif	11/06/2004 02:51	24/01/2005 16:40
194.	http://v5.windowsupdate.microsoft.com/library/toolbar/3.0/subbanner.aspx?t=V2luZG93cyBvcGRhdGU%3d&f=FFFFFF&b=5175C9&s=8EA7DD&t=False&font=S egoe%2c+13pt&v=0&c=qqGFVwSc4v0WWerYH8dwe2u3wv1%3d	24/01/2005 15:44	24/01/2005 16:40
195.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_LeftBottom.gif	11/06/2004 02:51	24/01/2005 16:40
196.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/warning.gif	11/06/2004 02:51	24/01/2005 16:22
197.	http://v5.windowsupdate.microsoft.com/SelfUpdate/wuident.cab?0501241615	04/08/2004 00:05	24/01/2005 16:15
198.	http://office.microsoft.com/officeupdate/catalog/xml/1033/SP1_11_1033.xml?632422172995214127	06/01/2005 15:56	25/01/2005 11:17
199.	http://office.microsoft.com/_Services/Ont/en-US/Menu.css	12/11/2004 02:18	25/01/2005 11:26
200.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/News_bg_LeftBottom.gif	11/06/2004 02:51	24/01/2005 16:40
201.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_TopMiddle.gif	11/06/2004 02:51	24/01/2005 16:40
202.	http://v5.windowsupdate.microsoft.com/SelfUpdate/AU/x86/XP/en/wusetup.cab?0501241615	04/08/2004 00:14	24/01/2005 16:15
203.	http://office.microsoft.com/officeupdate/main.js?11,0,6412,0	11/08/2004 01:59	25/01/2005 11:26
204.	http://office.microsoft.com/_Services/Ont/Menu.js	12/11/2004 02:18	25/01/2005 11:26
205.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_bg_RightBottom.gif	11/06/2004 02:51	24/01/2005 16:40
206.	http://office.microsoft.com/officeupdate/content/opuc.cab	29/08/2003 20:59	25/01/2005 11:16
207.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/js/survey.js?632421528169176842	02/12/2004 03:52	24/01/2005 16:40
208.	http://office.microsoft.com/global/images/default.aspx?assetid=ZA010499831033	21/01/2005 01:57	25/01/2005 11:16
209.	http://windowsupdate.microsoft.com/redirect.js	21/10/2004 04:14	24/01/2005 16:39
210.	http://v5.windowsupdate.microsoft.com/v5consumer/s_hared/images/AU_ShieldGreen.gif	11/06/2004 02:51	24/01/2005 16:40
211.	http://v5.windowsupdate.microsoft.com/v5consumer/news.aspx?ln=en		24/01/2005 16:40

