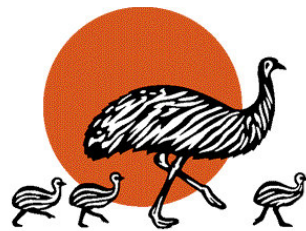


Cheetham Wetlands Shorebird Project

Report to WWF Australia (Ref No 33246)



Birds Australia

Prepared by Mark Antos & Michael Weston

January 2006

Birds Australia

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Birds Australia

415 Riversdale Road

Hawthorn East VIC 3123

Australia

Tel: (Australia): (03) 9882 2622 Fax: (03) 9882 2677
(Overseas): +613 9882 2622 Fax: +613 9882 2677

E-mail: mail@birdsaustralia.com.au

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EXECUTIVE SUMMARY

This report presents the results of the second phase of the Cheetham Wetlands Project which was conducted between September and December 2005. It carries on some of the tasks initiated by the original Cheetham Wetlands Project (October 2004- May 2005) as well as implementing several new initiatives.

The project sought to remain inclusive of all stakeholders which had been involved in the past (Parks Victoria rangers, Friends group members, local councils, Victoria Police, local residents) while also being successful in engaging new stakeholders (Parks Victoria planners, new local residents, land developers).

Local residents and members of the local Friends group were contacted in relation to continue ongoing monitoring of human and shorebird use of the site. Encouragement and supportive materials were provided to help establish regular monitoring groups. Deakin University has been recruited as a potential research partner and an honours project examining human use and activities at Cheetham has been advertised to prospective students.

Extension works have continued with the distribution of extension materials at public information days, conferences, through the mail and during tours of the wetlands. A total of four tours of the wetlands were conducted for widely varying audiences and the profile of the Cheetham Wetlands was maintained in the local media.

Two notable outputs of the project included a scientific paper submitted to an international journal outlining the current and predicted levels of human disturbance at the wetlands. A number of possible management scenarios were tested in the paper and recommendations for future planning were made. The other output consisted of a guide explaining how sand pads can be used as an effective tool to monitor human activity within wetlands. This will prove to be an important tool for wetland managers.

The project has advocated for suitable future planning within the wetland by using existing data to highlight current problems to relevant land managers and offering recommendations.

INTRODUCTION

Previous work conducted at Cheetham

This project constitutes the second phase of the Cheetham Wetlands Project. The first phase was conducted between November 2004 and May 2005 and was funded by WWF through the Australian Government's Natural Heritage Trust.

The first phase of the project was successful in achieving the following :

1. a monitoring program for birds and human uses was developed
2. data on bird use and levels of human disturbance were obtained
3. levels of awareness of the wetland were monitored
4. a draft communications plan was prepared
5. a high level of stakeholder engagement was achieved
6. extension materials were prepared and distributed

For more details of project methods and outcomes, refer to Antos *et al.* (2005).

This work provided insights into the levels and nature of illegal access to the wetlands and the disturbance that it caused. The current phase of the project will continue to analyse the human disturbance results obtained as well as further investigating methods to monitor human activities at wetlands. Extension work initiated during the first phase of the project will be continued and expanded.

Cheetham Wetlands face continued pressure from increasing residential development on the wetland margins, calls to improve public access and considerations to allow dog walking in surrounding conservation areas. It is therefore of paramount importance to continue monitoring and extension works at this wetland of international significance. The outcomes of this will be twofold- it will provide an important benchmark of how the wetlands have changed through time with increasing development and it will help to advocate for suitable planning to ensure that wetland values can be maintained into the future.

OBJECTIVES

This project aims to continue with some of the activities undertaken during the previous Cheetham Wetlands Project and to further explore and pursue a number of key issues which were identified previously.

Specifically, the project aims to continue developing a shorebird extension program that is inclusive of all stakeholders and facilitates community stewardship of Cheetham Wetlands. It is hoped that this will serve to minimize the effects of human disturbance and the impacts of surrounding residential developments upon the wetlands and the shorebirds that utilize them.

The objectives will be achieved through conducting four key actions;

- 1) Continue ongoing monitoring
- 2) Foster ongoing monitoring
- 3) Continue extension works and
- 4) Advocate for suitable planning

This report will describe the activities that have been carried out to fulfill these actions. Two major outputs, a draft of a scientific paper and a sand pad user's guide, are provided as attachments to the report.

OUTPUTS

1. Cheetham monitoring program

Bird and Human Use Surveys

In order to facilitate local involvement and to continue bird monitoring at Cheetham Wetlands, contact was made with Bob Winters on the 12th of Sept. Bob is a resident of Sanctuary Lakes, an employee of the Gould League and a keen birdwatcher. He is currently trying to start up a local bird watching club within the Sanctuary Lakes estate.

Bob has indicated his interest in the Cheetham Project and a meeting was conducted with him at the site of the wetlands. Birds Australia has supplied Bob with suitable extension materials produced for the Cheetham project as well as the Shorebirds supplement so that they can be distributed to local residents. These will complement the existing education materials that Bob has access to through his work at the Gould League.

We have also supported Bob in his development of a nature trail along Skeleton Creek, just upstream of the Cheetham Wetlands. Low cost images of shorebirds were made available to Bob from the Birds Australia collection to be used on interpretative panels as part of the nature walk.

A number of other volunteers, including from overseas, have also requested more information on the Cheetham Wetlands Project. However, it was difficult to engage these volunteers due to the specialized work required of them and the lack of funding to support their expenses.

A meeting was conducted at the Cheetham Wetlands with Doug Osborne, president of the Friends of Cheetham Wetlands, and Suzie Inglis of Hobson's Bay City Council on the 26th of November. During this meeting, Doug agreed to investigate the option of using the Friends group to continue with the human monitoring activities at the site over two or three days during the summer. Birds Australia has agreed to provide support for the group with this activity.

Victoria Police

Senior Sergeant Peter Gibbons was contacted by email on the 20.9.05 regarding a potential follow up spotting session to apprehend illegal trail bike riders and maintain pressure to keep them out of the wetlands. He expressed a keen interest to be kept informed on the use of illegal trail bike within the wetland and is keen to make available two officers on trail bike to apprehend offenders.

An email was sent on the 17th of October to relevant stakeholders (Councils, Parks Victoria, Friends Group members, local residents etc.) encouraging them to report all sightings of trail bikes to the local Police station. This action will act to increase public

vigilance around the wetlands and the reports will help to build a cleared picture of patterns on trail bike use.

Unfortunately, Victoria Police was unable to provide trail bike officers during the period of the project due to a lack of resources being available at the required time. Victoria Police has indicated that Birds Australia will be made aware of future opportunities to collaborate in helping to control illegal trail bike use at the site. At the current moment, it is believed that illegal trail bike use within the wetland is too low to warrant an enforcement operation.

Deakin University

Work has been undertaken with Deakin University to engage an honours student in the future to continue human use surveys at Cheetham Wetlands. A project outline and summary has been prepared and is available on the Deakin University website and honours information booklet for prospective students to read. A staff member who specializes in human dimensions of wildlife management has agreed to supervise potential students.

Sand pads

Previous monitoring of human activity within the Cheetham Wetlands indicated that sand pads may be a cost-effective and efficient tool for surveying human presence within areas receiving low levels of visitation. However, a number of aspects of sand pads as a recording tool remain poorly known, such as the latency of prints and the influence of weather on sand hardening.

Two experiments were conducted. The first examined print latency and sand hardness, and the second examined the effect of various numbers of passes on the sand pad. These results are presented in Attachment 1. Because sand pads have the potential to be an important monitoring tool at wetlands throughout Australia, the production of a sand pad guide, incorporating the findings of the experiments, is likely to be a very useful tool for wetland managers.

2. Cheetham extension program

Information days

Birds Australia participated in the information day (30th Oct) organized by the City of Hobson's Bay to advertise the opening of new shared pathways and playgrounds along Skeleton Creek.

A Birds Australia presence was maintained at a trestle table and information board during the morning and posters and pamphlets produced specifically for the Cheetham project were widely distributed to local residents. This provided an invaluable opportunity to raise awareness of the wetlands among the local Friends group and local residents.

Approximately 100 people, mostly local residents, visited the display during the course of the day.



City of Hobson's Bay Skeleton Creek open day. Birds Australia presented information on the Cheetham Wetlands within the marquee (M. Antos).

Wetland tours

A wetland tour was conducted in July for people who responded to an article placed in Virgin Airline's in flight magazine *Voyeur*. Four people were taken on a one and a half hour tour of the wetlands.

Bernie McCarrick and John Argote (rangers at Pt Cook Coastal Park) and Suzie Inglis (Hobson's Bay City Council) were contacted on the 20-9-05 regarding a potential tour of the wetlands for the local Friends group and interested residents. The tour was conducted on the 30th of October following the City of Hobson's Bay information day (see above). Nine people, including members of the Friends of Skeleton Creek as well as local residents attended the tour. A minibus was used to take participants on a two hour tour of the wetlands and over 40 bird species were seen.

On the 27th of October, Ben Olewine from the Birdlife International Council was taken on a tour of the Cheetham Wetlands, accompanied by Birds Australia staff and CEO, Graeme Hamilton. This was a good opportunity to showcase the importance of the Cheetham Wetlands as a shorebird habitat, as well as the threats it faces, to an important international bird conservation authority.

A tour of the Cheetham wetlands was conducted for members of the Birds Australia Council on Saturday the 26th of November. Members of the Council consist of a wide range of professional ornithologists and researchers. This tour was important in raising awareness of the importance of the site and the challenges it faces to an important audience.



Local residents on a bird watching tour in Cheetham Wetlands (M. Antos).

Signage

Six steel signs were manufactured featuring the poster which was produced exclusively as part of the Cheetham project. Three of these signs have been erected at key points surrounding the Cheetham Wetlands within the City of Hobson's Bay. The signs are regularly monitored for any signs of damage or vandalism and their condition is reported to the local council.



New interpretive sign along bike path next to Cheetham Wetlands (M. Weston).

Dog pamphlets

The Wetlands and Your Pets pamphlets produced for the Cheetham project continue to be distributed. Great success was achieved with the City of Wyndham and the City of Hobson's Bay distributing the pamphlets together with pet registration renewal notices to local residents. Following on from the success of the pamphlets, a second print run was undertaken.

The pamphlets were distributed at the Birds Australia Scientific Congress at Bendigo on the 1-2nd of October.

An image of the pamphlet along with information of its content and details of how to obtain it have been published in the Conservation Directions section of the December edition of *Wingspan*, the official magazine of Birds Australia which goes out to all members. The pamphlet has also been featured in the October issue of the *Volunteer*- the newsletter of the Threatened Bird Network.

A note was also sent to the editor of the newsletter of the Australian Bird Study Association on the 8th of November asking to make members aware that the pamphlets are available upon request. This will be included in the next edition of the newsletter in February.

Scientific paper predicting impacts of residential development

Data gathered as part of the human monitoring aspect of the Cheetham project have undergone innovative analysis and disturbances have been mapped. A scientific paper has been prepared which investigates the present impacts of disturbance as well as predicting future disturbance once residential development is completed along the southern boundary of the wetland. This paper has been submitted to the international journal *Landscape and Urban Planning*. A copy of the submitted manuscript is included in Attachment 2.

Cheetham web site

Information on the Cheetham Wetlands Project has been provided on the Birds Australia website at <http://www.birdsaustralia.com.au/projects/cheetham.html> . This was updated on the 17th of October to include images of the poster and pamphlets that were produced as part of the project as well as a call to volunteers who are interested in participating in the project to contact Birds Australia.

Media coverage and awareness

This project has ensured that the Cheetham Wetlands remain on the agenda of local land managers and planners. A number of articles have appeared in the local press which continue to keep the local residents aware of the wetlands and their values. Copies of these are provided in Attachment 3.

3. Cheetham Advocacy

A number of planning decisions are being undertaken around the Point Cook Coastal Park and Cheetham Wetlands which have the potential to have impacts on shorebirds and their habitats. These include a proposed bicycle path around the wetland boundary and the possibility of allowing dogs to be walked on-leash through land managed for conservation by Parks Victoria.

Proposed bike path

There has been a proposal to extend the existing pike path located along the landward boundary of Cheetham wetlands north of Skeleton Creek to the south and onwards to the Point Cook Homestead (Parks Victoria 2005). Depending upon its location, this bike path may have a significant impact on shorebirds and wetland values.

Kellogg, Brown and Root Pty Ltd are the consultants engaged in examining potential routes and impacts of the proposed bike path. Birds Australia has provided them with data from the Atlas of Australian Birds database for the Cheetham Wetlands as well as with the data collected specifically for the first phase of the Cheetham Wetlands Project (Antos *et al.* 2005). Michelle Ezzy of Kellogg, Brown and Root was contacted by email on the 11th of Oct and informed of the human monitoring data held by Birds Australia.

A meeting was arranged with Alexandra Lewis, Team Leader Planning, Parks Victoria, at BA National Office on the 2nd of November. During this meeting maps of the proposed bike trail were examined. The information on human use within the wetland gathered by the previous Cheetham project was presented to Alexandra and a strong case was made to ensure that the trail was appropriately sited and that it didn't facilitate unauthorized access into the wetland. Birds Australia will continue to be kept informed of further developments.

Dog walking

Despite the existence of designated dog exercise areas outside the wetland boundaries and the disruptive impact that dogs can have on birds, there are proposals to examine allowing dog walking on leash in parts of the Point Cook Coastal Park and along the margins of Cheetham Wetlands (Parks Victoria 2005). Given that incursions of illegal off-leash dog walking are already frequently observed within the Cheetham Wetlands (Antos *et al.* 2005), there is concern that officially permitting dog walking may result in a further increase to the disturbance of shorebirds at the site.

Concerns about allowing dog access into the Point Cook Coastal Park and around the margins of the Cheetham wetlands were raised with Alexandra Lewis during the meeting of the 2nd of November. Birds Australia highlighted the importance of ensuring that dogs were on leash at all times and adequate fencing and other barriers were provided to ensure dogs would not stray into the wetlands. Concerns over the effectiveness of

enforcing dog regulations were also expressed, given that data gathered for the previous phase of the Cheetham project showed a compliance level with existing on-leash regulations in adjoining parkland to be as low as 30%.

This issue was raised by Mike Weston at the Shorebird Taskforce meeting in Canberra during November. General information on the Cheetham project was also presented at this meeting. Staff members from DEH Canberra were also made aware of the proposals and the concerns of Birds Australia at a separate meeting.

The publication of the scientific paper (see above) will be an important step in advocating for appropriate management of the wetlands and surrounding areas. It will ensure that information regarding current and predicted disturbances under a range of future management scenarios will be available in the public domain. Because the publication of papers in the international scientific literature is a lengthy process, drafts of the paper will be made available to relevant management agencies and stakeholders.

Information kits for new residents

Proposed residential developments on the south-western boundary of the Cheetham wetlands may have a potentially negative impact on wetland values. The land developer (Tony Johnson of Wilbow Corporation) was contacted by email on the 2nd of November. We have offered to make available the extension materials produced as part of the Cheetham project as well as other Birds Australia publications to the developer to be included in an information kit for new residents.

Jenny Underwood of Wilbow Corporation contacted Birds Australia on the 7th of November and expressed an interest in obtaining some materials for potential use in a resident information kit. Copies of the Shorebird supplement, The State of Australia's Birds 2004, Cheetham posters, Wetlands and Pets pamphlets and the Shorebird Case Studies were mailed to Wilbow Corporation so that they could see what sort of materials are available. Assistance with developing kits was also offered. Any work on this will probably take place one or two years away. Housing in the estate is not expected to be completed until 2007-2009. The first phase will involve approximately 2000 houses and the second phase may involve 1000-2000 houses.

Involvement in the preparation of a resident's kit and the provision of materials for it provides an ideal opportunity to deliver messages highlighting the values of the wetlands to a key stakeholder group. It will be an important first step in developing a sense of ownership and stewardship of the wetland and advocating for appropriate behaviour around the wetland.

CONCLUSIONS AND RECOMMENDATIONS

This project continued from the success of earlier work that was conducted as part of the Cheetham project. Specifically, it focused on keeping the wetlands on the agenda and continuing to engage with all stakeholders. It also sought to further explore some of the issues identified during earlier work and worked to consolidate existing data. The main achievements of the project include:

- Continuation of an open dialogue with existing stakeholders (e.g. Parks Victoria rangers, Victoria Police, local councils, Friends groups) as well as engaging new stakeholders (e.g. land developers, Parks Victoria planners).
- Distribution and advertisement of existing Cheetham extension materials to a wide audience.
- Maintenance of public exposure to the Cheetham Wetlands and the issues facing the site through presentation of information at a public information and open day on Skeleton Creek as well as numerous tours through the wetlands.
- Advocacy for suitable planning at the wetlands through liaising with local land developers and planners from Parks Victoria.
- Submission of a high quality scientific paper highlighting the values and threats at the Cheetham wetlands to an international journal.
- Conducting research into the efficacy of sand pads as a monitoring tool and producing a guide for their use at other wetlands throughout Australia.

The future

The Cheetham Wetlands have gradually become widely recognised for their conservation values and now feature prominently on the agenda of land managers and planners as well as in the local media. It would be desirable to see a number of tasks carry on into the future including;

- Liaising with land developers to produce new resident's kits and ensure that new residents are aware of wetland values.
- Provide support for honours research projects examining the changing patterns of human use and disturbance in response to changing management strategies and increasing development.
- Continue ongoing awareness raising and community engagement into the long term.

ATTACHMENT 1.

Ongoing monitoring of human uses of Cheetham Wetlands: evaluation of the use of sand pads as a survey technique.

Background

A major component of Birds Australia's Cheetham Wetlands Project (Antos *et al.* 2005) involved the monitoring of human activities and disturbances. This was undertaken because human disturbance has been recognised as a major causal agent of wetland habitat degradation and it has been shown to have significant negative impacts on shorebirds world wide (Thomas *et al.* 2003; Lafferty 2001; Grayson *et al.* 1999; Lord *et al.* 1997).

As well as conducting direct observations of human activities in the wetland, sand pads were also used as a supplementary survey technique. This technique involves the spreading of sand over tracks and strategic access points (Fig. 1.) and then recoding the number, type and intensity of prints present at regular time intervals.



Figure 1. Installing sand pads at the Cheetham Wetlands.

A total of seven sand pads were installed at the Cheetham wetlands and these were monitored at weekly intervals over a period of 13 weeks. Nine different types of tracks were identified from sand pads. The levels of prints on sand pads varied significantly with pads located at access points at the wetland margin having more prints than those

located further inside the wetland. The number and intensity of prints recorded on sand pads peaked during Christmas and Easter holiday periods (Antos *et al.* 2005).

During the course of the study, it became apparent that sand pads are an effective tool to measure levels of human use of wetlands. A number of advantages and disadvantages of this method were identified and are summarized below.

Advantages

- Wetlands can be effectively monitored 24 hours a day
- Low impact monitoring strategy
- User friendly requiring no specialist skills
- Subjects are generally unaware they are being monitored

Disadvantages

- Cost and labour intensive as sand requires replacing
- Limited to areas of easy vehicular access
- Effects of weather and print latency remain poorly known
- Susceptible to vandalism
- Potential to offer misleading results
- Information may be lost due to extreme weather events

We conducted a series of controlled experiments in order to gain a better understanding of how sand pads are affected by weather and how long prints will persist. We quantify whether the results obtained from sand pads are representative of actual observed levels of human use. This information will be of key importance to further refine and understand this innovative monitoring tool which has the potential to be employed on all wetlands around Australia.

Methods

1. Effects of weather and exposure

1.1 Aims

To determine how long sand pads can be exposed to various weather conditions before prints become difficult to identify or new prints become difficult to be imprinted.

1.2 Rationale

An understanding of print latency and the impact of different conditions and exposure times on sand is essential to determine how frequently sand pads should be checked, raked and topped up.

1.3 Method

Pale brick layers sand will be used in all instances. Brick layers sand will be used because it has greater binding qualities and is less likely to be blown away by the wind when dry. Ordinary sand is generally unsuitable for this reason and would require topping up more frequently.

We have chosen to use pale brick layers sand because it blends in with the natural soil cover at the Cheetham Wetlands. It is important to match sand colour to local conditions as otherwise the sand pad becomes obvious and may be deliberately avoided by people.

Two experimental sand pads were established and subjected to two separate treatments. One treatment was a control with the pad located outside but under cover from rain while the other treatment approximated natural conditions and was exposed to the elements. The covered pad was located under raised transparent plastic sheeting so that it was still exposed to sunlight and wind. Rainfall was measured daily with a rain gauge placed near the sand pads.

Each sand pad was divided into 5 sections and had a standard human footprint (Weight 70 kg) imposed on each section. This was done to give an indication of how prints wear in time. Standard human footprints were determined by walking over a sand pad and measuring the mean depth of eight prints. Mean print depth was established to be 28.6 mm. This was marked on a boot which was then imprinted onto the sand to the required depth.

Sand pads were located in controlled environments where humans and animals had no access. All pads were examined once daily and the maximum depth of prints was measured. Photographs were taken of sand pads at regular intervals. Sand hardening was measured by dropping a 75 mm long nail weighing 6.5 grams into the sand from a height of 30 cm and measuring its degree of penetration over time. This was carried out in an area deliberately set aside adjacent to each print. It soon became apparent

that the sand became too hard for the nail to effectively penetrate it so a steel hole punch was used to measure sand hardness as well as the nail.

2. Calibration of sand pads

2.1 Aims

To determine whether the levels of recorded prints on sand pads represent actual levels of use.

2.2. Rationale

It is essential to be able to calibrate actual levels of use with markings on sand pads so that they can be accurately interpreted.

2.3 Methods

A controlled Sand pad was established along a heavily used section of pathway shared by cyclists and pedestrians (path to the 100 Steps to Federation lookout). The number and types of crossings of the sand pad were observed from a distant vantage point where observers were inconspicuous. This allowed the sand pads to be examined after a known number of passes.

A person other than the observer and counter of passes, who was unaware of the number and type of passes, then examined the sand pad. A visual estimate of the percentage cover of different prints on pads was made. Prints were categorised into bike tracks, human footprints and dog prints. The number of discernible individual prints within each category was also made. A measure of the distribution of prints over the width of the pad was taken.

The behaviour of people at sand pads was also noted. Passes were categorised in terms of activity (e.g. cycling, walking) and into one of four categories: proceeded over sand pad without hesitating or looking at sand, proceeded over sand pad without hesitating but looking at the sand, proceeded after hesitating, avoided sand pad.

Results

Effects of weather and exposure on print latency

The latency of five sets of prints in the covered and exposed sand pads was monitored over a period of one month. A substantial increase in the depth of prints was recorded within the period of the first day in both of the treatments. This increase of depth was in the order of around 10% in both cases and is likely to have been caused by the subsiding of the sand within the print during the first 24 hour period. From the third day of measurement onwards, the prints in both the covered and uncovered treatments did not show any major changes in their depth. More variation was detected between the depth of prints located in the exposed pad than in the sheltered pad. The discrepancy of the depths between the covered and exposed pads was a result of the differences in the depth of the initial prints that were made. This difference was generally in the order of 10% and it remained constant through out the duration of monitoring up until the last few days of the experiment (Fig. 1). A significant rainfall event of 39mm occurred during a period when daily print depth could not be taken. This resulted in the only substantial reduction of print depth to be observed during the month that the experiment ran for. It resulted in a decrease in depth of around 4mm or 10% (Fig. 1).

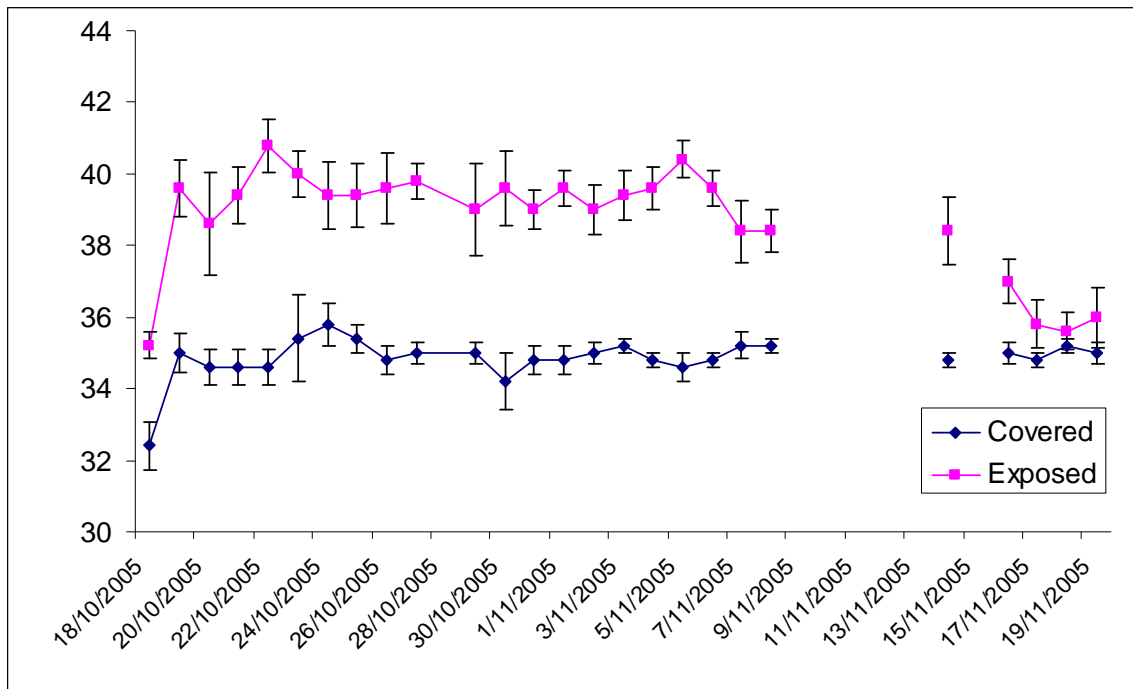


Figure 1. Mean depth (mm) of five prints (\pm SE) in covered and exposed sand pads measured over one month.

The hardness of both the covered and exposed pads increased by over 80% within the first 24 hour monitoring period. However, while the sand in the covered pad stayed relatively firm throughout the entire monitoring period, the hardness of the sand in the exposed pad was quite variable, showing up to 60% in variation (Fig. 2). Much of this variation can be attributed to rainfall events which generally served to soften the surface

of the sand. There was a correlation between rainfall and sand softness (Fig. 3). At the conclusion of the experiment, the sand pad that was kept under cover had become so hard that walking across it did not create an indentation, although the outline of foot prints was visible.

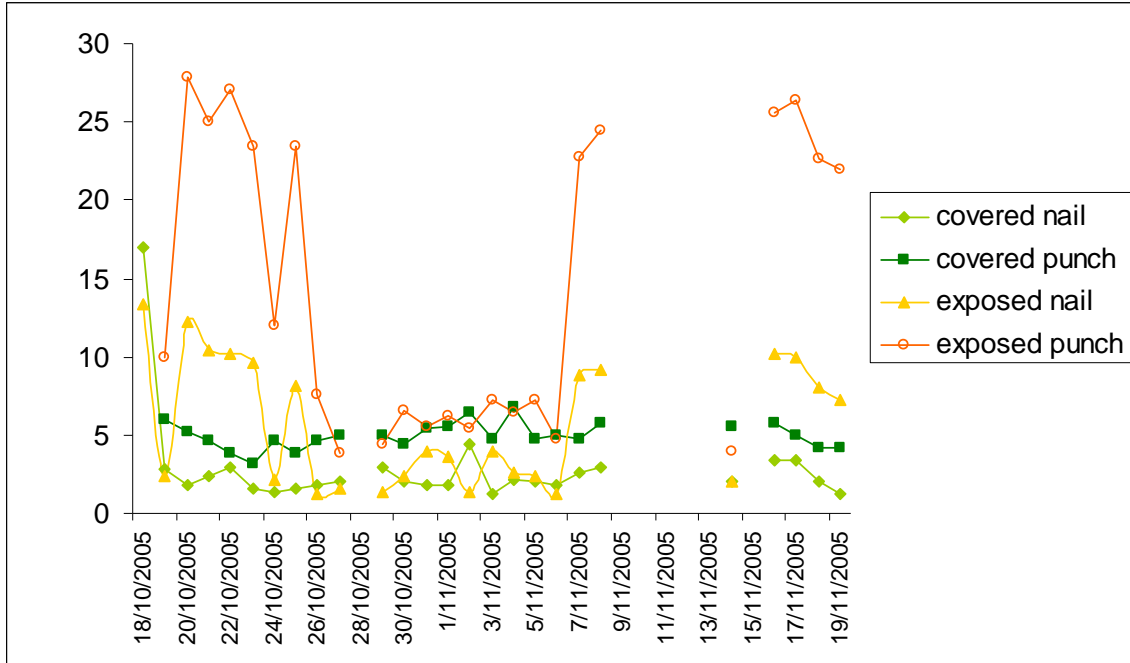


Figure 2. Mean penetration depth (mm) of a nail and steel punch dropped into covered and exposed sand pads from a height of 30 cm.

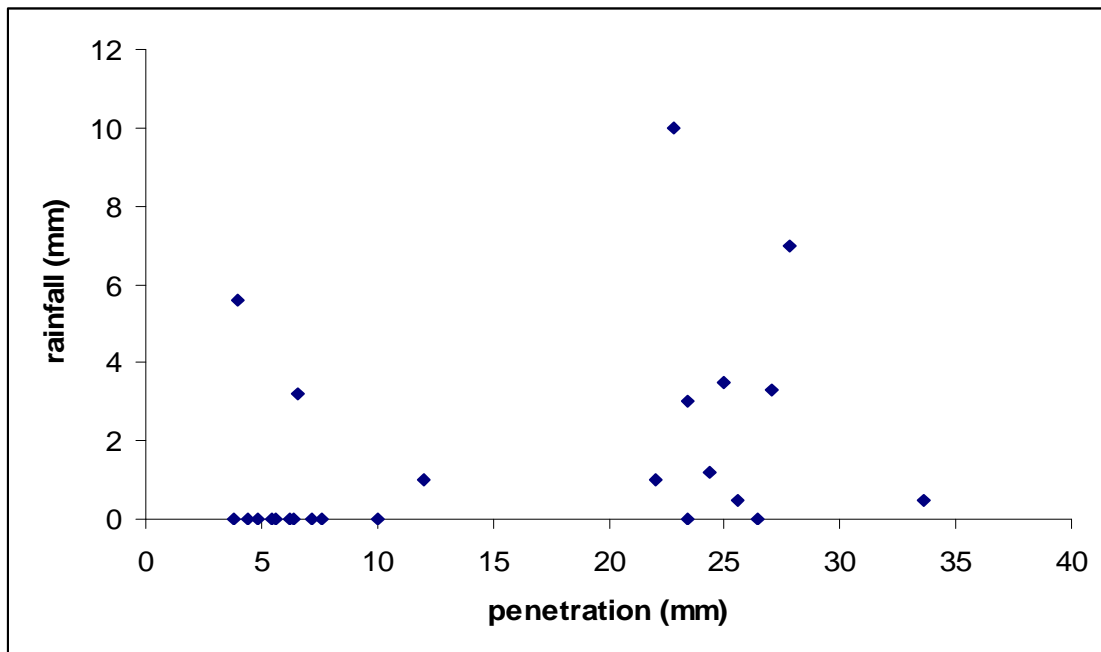


Figure 3. Mean penetration depth of steel punch dropped from 30cm and daily rainfall recorded at the exposed sand pad.

Sand pad calibration

Counts of discernable prints on the sand pad were generally well calibrated with the actual number of passes (Fig. 4). The predictions of bike tracks were the most accurate, while the counts of footprints were generally underestimated by nearly 50%. The overall number of all prints counted corresponded well with the number of actual passes. In most cases, there was a consistent relationship between the number of passes and the estimated percentage cover of prints on the sand pad (Fig. 5). There were only a few instances where a low percentage cover of prints value was obtained after a high number of passes. This was generally associated with multiple passes of bicycles which, by their nature, do not leave a large print impression (i.e. a narrow line), compared with footprints which are broader and each pass results in multiple prints.

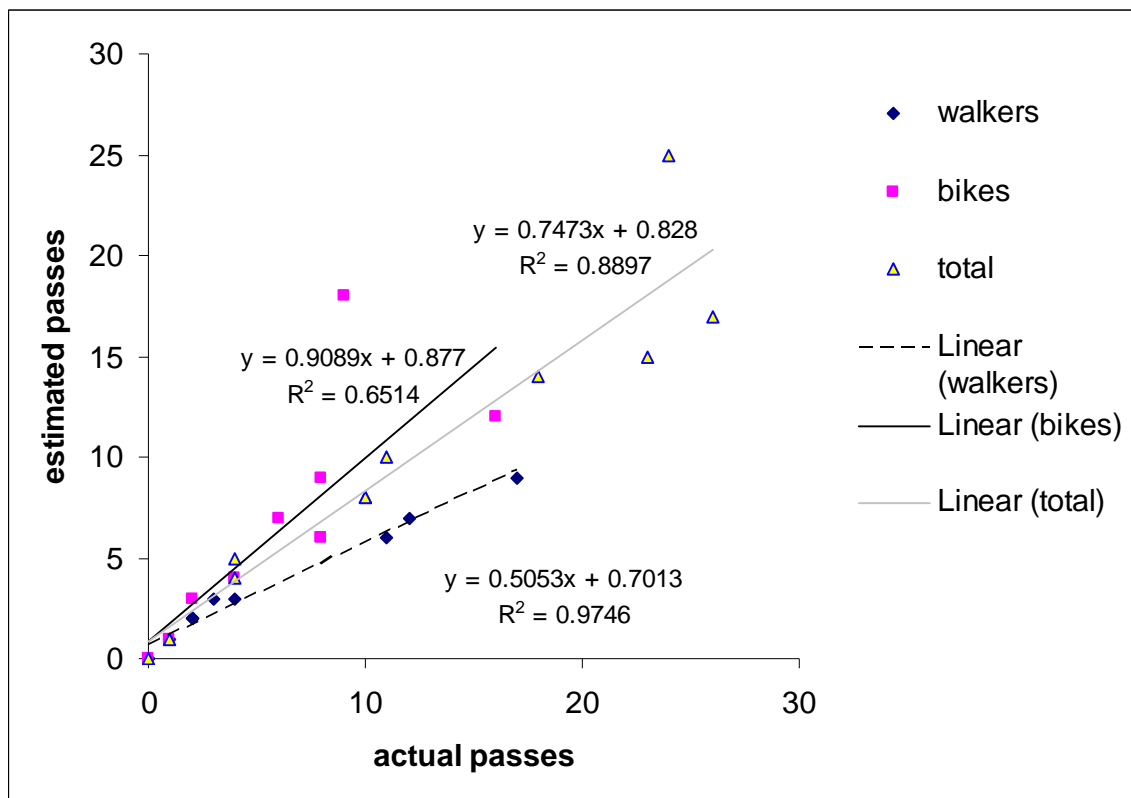


Figure 4. Relationships between the actual number of passes and estimated passes over sand pad. Lines of best fit are shown for all categories along with regression equations and R^2 values.

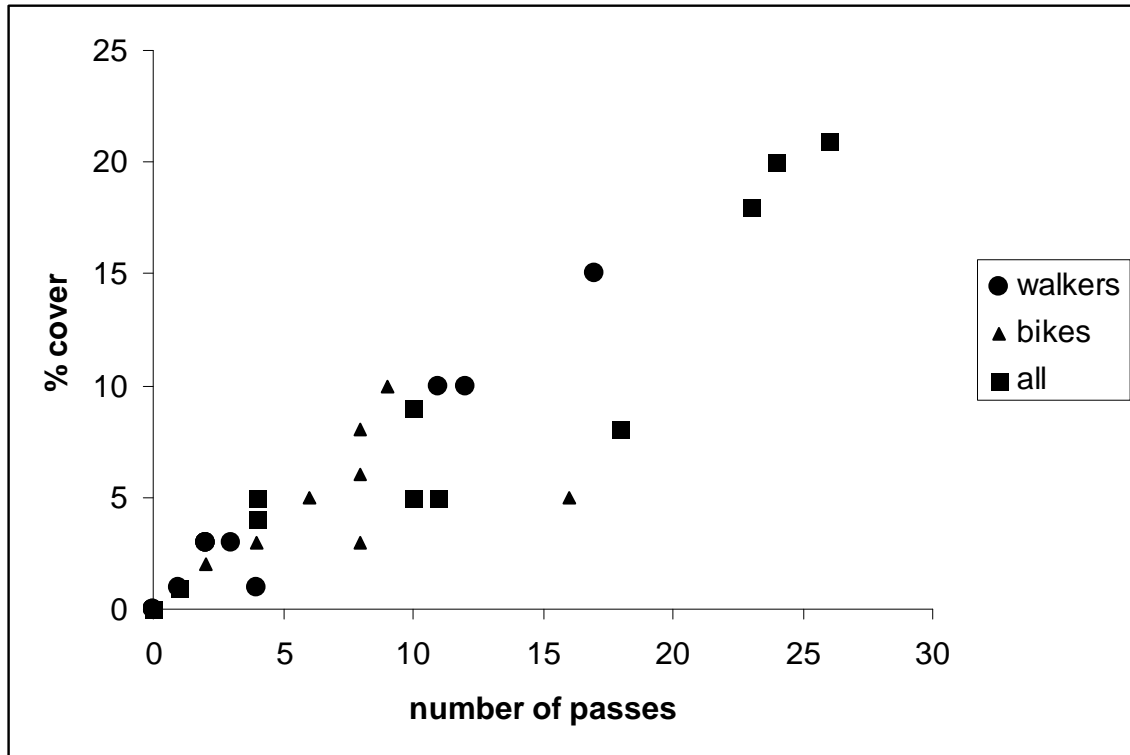


Figure 5. The relationship between the actual number of passes and estimated percentage cover of prints on sand pad.

Generally, a large proportion of the 3500mm width of the sand pad was used by people passing over it (Fig. 6). Rather than tending to follow a singular line of passage, users tended to cross the pad over nearly its entire breadth. As a rule, over 50% of the available breadth of the sand pad was used in nearly every instance. This was even true when small numbers of people (<5) had crossed the pad. Once over 20 people had crossed the pad, as much as 90% of its width was used. This pattern of usage suggests that walking in single file or along a preferred line, and thereby obliterating existing prints, is unlikely to be a major problem at pads as long as they are checked before very high numbers (>30) of users cross them.

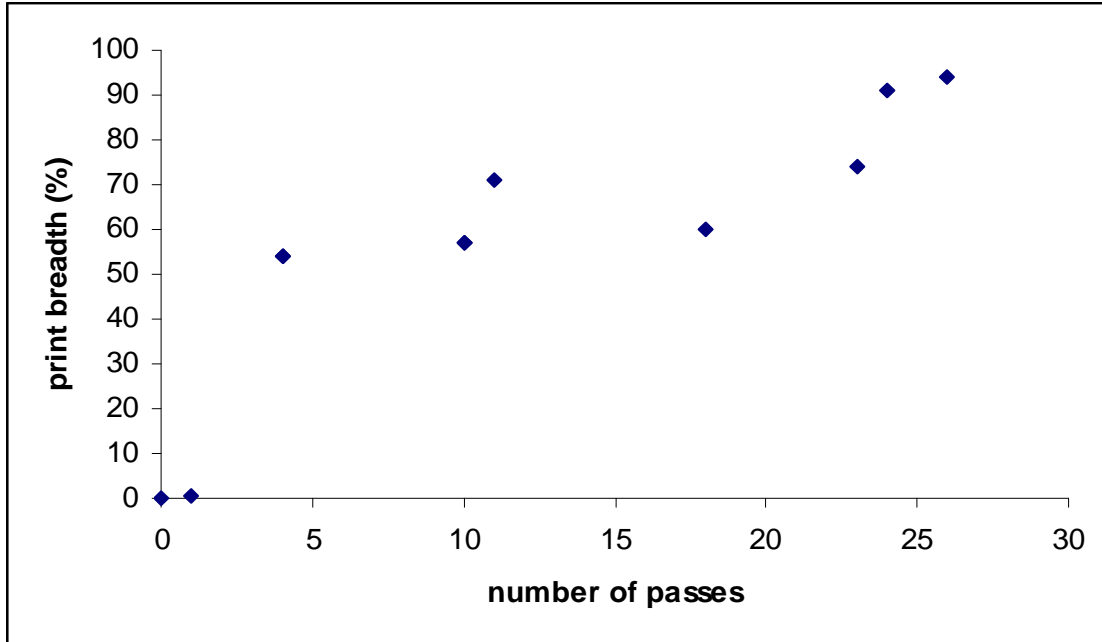


Figure 6. The relationship between print breadth (percentage width of the sand pad covered by prints) and the number of passes.

The behaviour of people at sand pads was very similar, irrespective of their activity (Fig. 7). Over half of all people crossing the pad remained unaware of its existence and did not even glance at it. Approximately 35% of people crossing the pad noticed it but continued to cross without any hesitation. Only a very small number of people hesitated before crossing the pad and levels of pad avoidance were very low (<4% in both cases). This indicates that a high degree of confidence can be placed in sand pads as an accurate tool for detecting human passes.

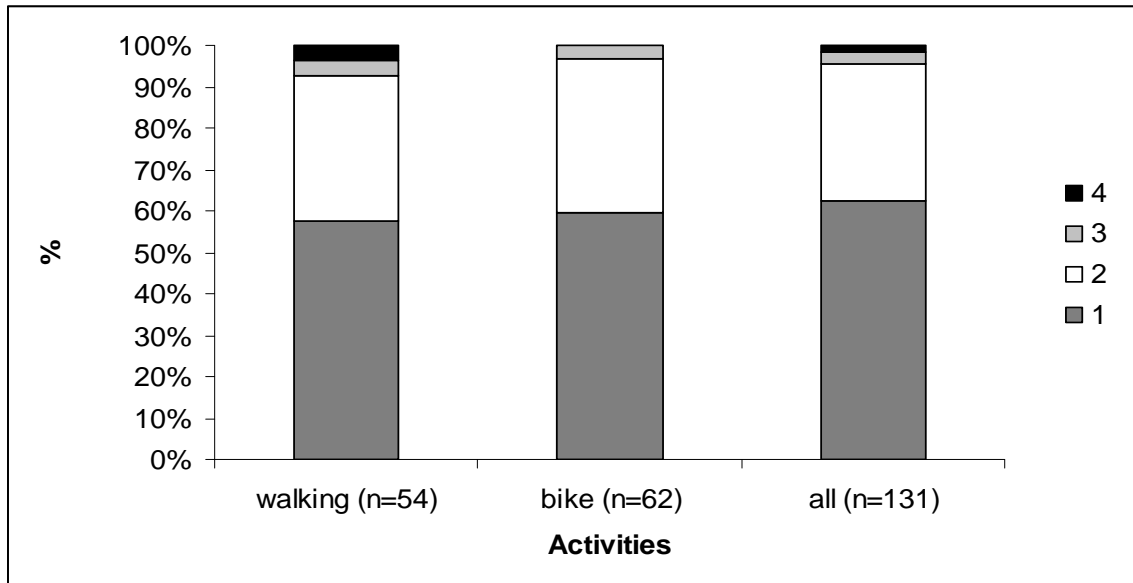


Figure 7. Behaviour of people at sand pads. 1) crossed without hesitation and without looking at pad, 2) crossed without hesitation but glanced at pad, 3) crossed after hesitation, 4) avoided pad.

Discussion

Our results have indicated that human footprints have a very long period of latency within sand pads. They are generally not affected by weather and managed to retain their depth and shape over a period of one month. These findings indicate that information will not be lost from pads if they are not checked frequently. For instance, a checking interval of a week will be sufficient as no prints will be lost.

There is however a tendency for pads to develop a hard crust with time, especially during dry conditions. Our results indicated that this occurred in as little as 24 hours. Although this reduces the penetrability of the sand surface, it does not compromise its ability to record prints. Human prints will still be easily imprinted albeit to a lower depth, provided that the sand receives some moisture. In our experiment, it was very difficult to make an imprint on a sand pad which had not been exposed to rain for over four weeks.

One serious issue with the use of sand pads is their inability to accurately record high levels of usage. While they are a very efficient tool at recording activity at sites with low human traffic (often under circumstances where direct observation is inefficient), they may be less reliable at sites with high volumes of traffic. Difficulties arise with the interpretation of sand pads where heavy use results in the overlapping and potential obliteration of pre-existing prints. This is a particular problem where visitors are likely to take the same path over the sand pad, thus leaving the majority of it blank while a small section is exposed to intense imprinting. However, our trials have indicated that this is unlikely to be a problem provided that the pad is sufficiently wide. People will generally tend to use the entire width of the pad, thus reducing the risk of print overlap, in the short term at least.

In low traffic situations it is possible to accurately count the number of prints and therefore determine the number of people to have crossed a pad. Measures of percentage print cover are also likely to accurately reflect the intensity of passes. Because the majority of people do not notice sand pads and only a very small proportion avoid them, confidence can be placed in their efficacy and accuracy in recording actual levels of use.

This study has demonstrated that sand pads can be used effectively to monitor human activity at wetlands and other natural areas, especially where there are low levels of visitation and direct observation would prove to be inefficient. The frequency at which sand pads need to be checked and reset by raking will be influenced by the levels of visitation to a site rather than the latency of prints. Given that prints remain well preserved in sand pads over a one month period under a range conditions, inspection at areas of low use can be infrequent.

The findings of this experiment were obtained under controlled conditions. It is likely that in field situations other considerations will need to be acknowledged when determining checking frequencies for sand pads. For instance, our trials at the Cheetham Wetlands revealed that animals such as rabbits would often dig around in the sand pads, potentially destroying prints and reducing the life of the sand pad. Other considerations

could include the need to keep pads topped up with fresh sand, especially in particularly exposed situations or on sloping ground where sand loss over time is an issue.

Recommendations

Which areas are most suitable for sand pads?

Sand pads can be used to monitor human activity in any natural or recreational area that receives low levels of usage. It is a cost and time effective way of surveying human visitation to these areas. Where levels of visitation are high, sand pads may not be effective as existing prints may become overlapped and obscured by new prints. In such instances, pads may need to be checked very frequently or another survey method, such as direct observation, may need to be employed.

Where should sand pads be sited?

Sand pads are best sites on unsealed tracks where they will blend in with the surrounding surfaces. Placing the pad on level ground will reduce the erosion of sand and increase the life of the pad. Try to place the pad on a section of track that has tall shrubs or other obstacles on either side of it. This will make it more difficult for people to go around it and will also protect the sand from wind erosion. The pad should be placed across a relatively wide section of track as multiple sets of prints will show up more clearly. If the pad is narrow then people are likely to walk through it along the same line and obliterate existing prints.

How often do sand pads need to be checked?

This will largely depend on the weather conditions and the amount of traffic at the areas being surveyed. In very low use areas with relatively frequent rainfall, footprints will remain discernible for over one month. In low use areas a checking interval of one week will be suitable as no prints are likely to be lost to weathering in this time. In very dry climates, pads may need to be checked and raked every few days. Dry conditions cause the sand to harden and it may reduce its ability to record all prints. If the goal of the surveys is to record presence of visitors rather than to estimate numbers, pads can be left unchecked for longer.

What sort of sand should be used?

The most important consideration is to choose a sand colour that will blend in with its surrounds. For example, few people may be willing to walk through bright orange sand if it is located on a pale-colored path. Bricklayers sand is probably the best to use. It comes in a variety of colours and has a quality which helps it to bind together. This reduces loss of sand from the pad through wind erosion but also makes the sand develop a hard crust in dry conditions, making it difficult for further prints to be imprinted. Therefore, frequent raking may be required in dry climates.

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ATTACHMENT 2.

Cheetham Wetlands media coverage and publicity

Page 16 – The Times, Tuesday, August 16, 2005

ENVIRONS

Wetland a flight of fancy

By Emma Sutcliffe

IT is a finely-tuned ecosystem and home to a huge variety of plant life, with birds travelling up to 11,000km to rest and feed there.

But it's not the Queensland tropics or the forests of Tasmania, but an amazing natural wetland on our doorstep.

The Point Cook Coastal Park, considered one of the top 10 wetlands in Australia by environmentalists, has long been a haven for migratory birds from as far away as Alaska.

Parks Victoria ranger Bernie McCarrick said the Cheetham Wetlands, once the site of the Cheetham Saltworks, has 81 natural ponds of more than 500 hectares.

"The ponds grow algae, which attracts flies that the birds eat," he explained. "We drain the ponds, dry them out, then re-flood them to encourage nutrients and algae growth, which keeps the birds coming back to rest and feed."

Mr McCarrick said the Spectacle Lake Bird Hide offers the best spot for people to watch birds in their natural habitat.

"We can see the double-banded plover from New Zealand, red cap plovers who lay eggs on the salt marsh, as well as black winged stints, and the critically-endangered orange-bellied parrot has also been seen at Cheetham."

The coastal park has also been recognised as an area of importance by the Ramsar Convention.

Named after the Iranian city in which it was signed, the Ramsar Convention started in 1971 and is an international treaty for the conservation of wetlands.

Dr Harry van Moorst, from the Western Region Environment Centre, considers the Cheetham wetlands to be "second only to Kakadu in its importance to migratory water birds. It is very important by Australian, and certainly Victorian, standards".

Mr McCarrick said the park has significant Aboriginal sites, as well as remnants of the track and bridges used by the Chirnsides family when they lived at the Point Cook Homestead.

"The homestead was bought by Chirnsides in 1852 before they built Werribee Mansion, and they used the route through the wetlands to reach Melbourne by horse and cart.

The coastal park also includes a 297-hectare marine sanctuary, which boasts one of the cleanest bay beaches



Park Victoria ranger Bernie McCarrick surveys the Cheetham Wetland
Picture: Adam Elwood

The Times Aug 16th 2005.

Treasured inhabitants

By **Fiona Garlick**

WHILE Hobsons Bay residents know there is more to the municipality than beaches and closeness to the city, some are unaware of the unique flora and fauna in the area.

The municipality is home to many species, including the chocolate wattled bat and the endangered Altona skipper butterfly, swift parrot, the orange bellied parrot and the striped legless lizard.

The council's draft environment strategy states 21 per

cent of Hobsons Bay is open space comprising three important ecological systems — including the Cheetham wetlands, Cherry Lake, Truganina swamp, Jawbone and Altona Coastal Park, the grasslands of Altona North, and the coast of Port Phillip.

Birds Australia co-ordinator of threatened bird network and Altona North resident, Chris Tzaros, said there was a "real diversity" of habitat and animals in Hobsons Bay.

"The western shores of Port Phillip Bay are so much more

significant than the eastern side in terms of habitat.

"There are lots of large natural grassy areas and conserved wetlands."

Mr Tzaros said aquatic birds — including swans and pelicans — and migratory species lived in Hobsons Bay each year before flying to the northern hemisphere.

Hobsons Bay also has a colony of penguins, which are regularly seen in Altona and Williamstown.

The endangered orange bellied parrot was last seen in

Altona in 1961, although there have been unconfirmed sightings in the Cheetham wetlands and in Werribee as recently as this year.

Friends of Lower Kororoit Creek president Geoff Mitchelmore has been working to improve the habitat of the endangered swift parrot, which lives in Truganina swamp in spring and autumn.

Mr Mitchelmore said the Department of Sustainability and Environment estimated only 1000 of the brightly coloured birds were left.

"The swift parrot is seen in the area, but not very often.

"It is usually seen with other birds."

Mr Mitchelmore said FOLKC was working on planting more yellow box gums and yellow gums to attract and provide food for the parrot.

Flying at speeds of up to 100 kmh may help them when migrating, but it was also part of the reason the bird was on the endangered list.

"They fly so fast it means they can't see things.

"Especially glass things like bus shelters."

Mr Mitchelmore said the parrot also played an important part in getting the proposed mosque moved from Paisley Park.

The park has gums the parrot feeds on.

Friends of Westona Wetlands president Judy Hindle said numbers of the endangered Altona skipper butterfly were down to about 2000 a few years ago.

The *Gahnia filum* grass, which the butterfly feeds on, grows in the Hobsons Bay wetlands, including Cherry Lake and Truganina swamp.

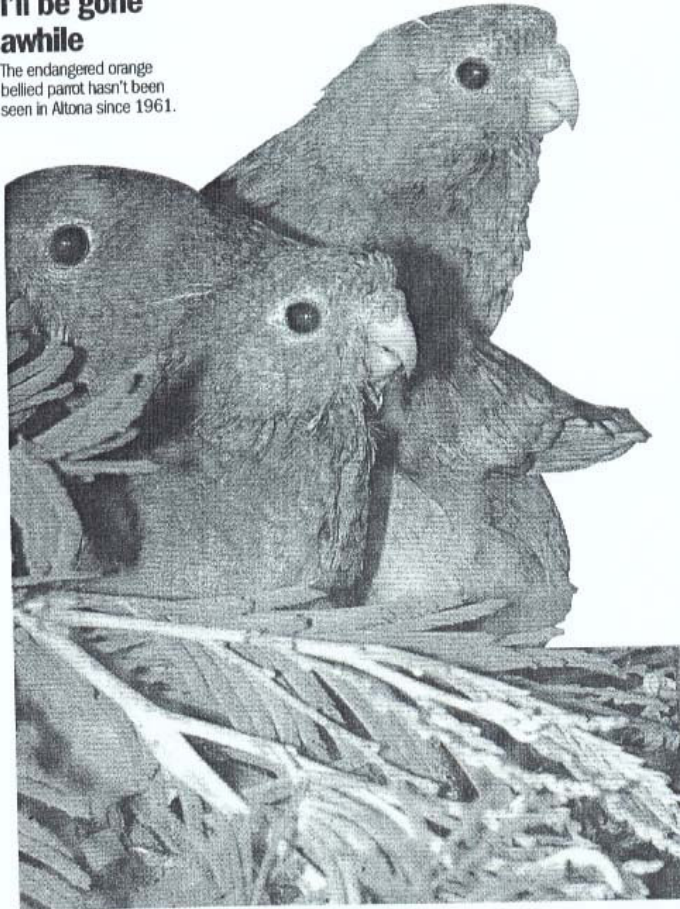
The brown and beige animal is about the size of a thumbnail and is normally seen on warm, still days.

Spiders and wasps are natural predators of the butterfly.

Mr Tzaros said there were many ways Hobsons Bay residents could help the local flora and fauna, including pet control and litter reduction, because rubbish went down stormwater drains and was eaten by birds or entangled them.

I'll be gone awhile

The endangered orange bellied parrot hasn't been seen in Altona since 1961.



Skeleton Creek Information Day

All interested people are invited to an information day at Skeleton Creek, Altona Meadows, on Sunday, 30th October from 10.00am to 2.00pm. Information on the area's unique eco-system will be provided by Friends of Skeleton Creek, Birds Australia, Melbourne Water, the Frog Census program, Waterwatch and Hobsons Bay City Council. Meet at Skeleton Creek near Markham Close, Melways reference 208 D3. For more information please call Susie Inglis on 9932 1000.

The Times Oct 25th 2005

December 2005 / WINGSPAN 7

In Brief

Funding successes

- At any one time Birds Australia manages over 50 research and conservation projects. This has been a particularly successful period for fund-raising to support projects. The newly funded projects include:
- a bid under the National Competitive Component of the Natural Heritage Trust (NHT) to facilitate bird monitoring in 10 Natural Resource Management Authorities throughout the country. A full-time project officer will work on this project for three years.
 - a NHT grant, hosted by Port Phillip and Westernport Catchment Management Authority, to promote coexistence between beach birds and recreationists. A project officer will be employed for over two years to deliver this project.
 - the appointment of a full time project officer for the mainland component of the Orange-bellied Parrot Recovery Effort, who will be employed over the next three years or so, in an NHT program hosted by Glenelg-Hopkins Catchment Management Authority. This funding was secured in a recovery team bid led by the Department of Sustainability and Environment.
 - updating the accounts for a second group of 10 taxa for the Australian Government's Department of the Environment and Heritage's (DEH) Species Profile and Threats database (SPRAT). The database seeks to provide essential information to developers and assessment officers under the Environment Protection and Biodiversity Conservation Act (EPBC Act). Project officers Mark Antos and Scott Chambers are undertaking the task.
 - an anonymous donor has funded a three-year, part-time project officer to enhance, fund and grow the application of the Atlas of Australian Birds data to ensure that it is used for maximum benefit.
 - the Vera Moore Foundation has funded a part-time project officer to help reinvigorate the Nest Record Scheme, our longest running database.
 - WWF Australia, funded by the NHT, has extended the Cheetham Wetlands project until the end of 2005. This will allow the continuation of the program of working with stakeholders to protect the site.

Shorebird habitat

Identifying significant habitat for any species is vital to its wise management. Project Officer Rob Clemens has begun a project using the Australasian Wader Studies Group's National Wader Count database to identify significant shorebird habitat. This project will feed directly into the Wildlife Conservation Plan for Migratory Shorebirds, the first plan of its type under the EPBC Act. Rob will be testing criteria already identified (Wingspan Vol. 15 No.3, p. 7), to precisely define 'sites' as a precursor to identifying significant habitat. This work is funded by the NHT via DEH.

Wetlands, shorebirds and pets
As part of the Cheetham Wetlands project (western Melbourne, Victoria), posters and pamphlets were produced on appropriate

behaviour in wetlands. The brochure has been so successful that a generic version *Wetlands, shorebirds and your pets* has been developed and is available from Bianca Priest, WWF Australia, c/- Tasmanian Land Conservancy, PO Box 2112, Lower Sandy Bay TAS 7005; ph 03 6225 1394; bpriest@wwf.org.au or Birds Australia National Office. The poster has been converted into signs placed at locations where people access the site. Other project highlights include an open day for a local Friends Group, several articles (e.g., see <http://www.deh.gov.au/water/wetlands/publications/wa13/wetland.html>) and wetland tours which were advertised in the in-flight magazine of Virgin Blue. This project was part of the National Shorebird Conservation Project, and was funded by the NHT and managed by WWF Australia.

NHT feedback

Birds Australia recently participated in a workshop run by the DEH aimed at providing feedback on the NHT and National Action Plan for Water Quality and Salinity. Birds Australia has managed many projects funded by the NHT, and is of the view that the current focus on regions to deliver funds has advantages. While some areas, such as threatened species and coastal and marine issues, have not realised the full benefits of the regional model as yet, the NHT continues to be a major supporter of environmental works throughout the country.

Natural Resource Management

In recent years, the Australian Government altered its natural resource management (NRM) approach. Under bilateral agreements, Federal and State funding is channelled to 57 Regional NRM Bodies (called Catchment Management Authorities in some States). Regional plans and strategies are being developed which provide the framework through which regional communities identify, manage and report on NRM in their region, including biodiversity.

Birds Australia has had a seat on the NSW Natural Resources Advisory Council (NRAC) for over a year, and is currently represented by Dr Penny Olsen. NRAC provides an independent, high-level forum for representatives of key stakeholder groups involved in NRM to provide feedback to the NSW government. In September, Birds Australia assisted with a tour by NRAC and land managers of the Moree area in northern NSW, to view NRM issues. Information on the use of birds as indicators for biodiversity management was distributed, and we thank Andrew Ley for his help on the day.

Birds Australia also recently presented a talk on birds and biodiversity to a conference of NRM Facilitators from throughout the country.

Facilitators are employed by the Australian Government to work within regions to assist in the delivery of NRM. The talk was one of the first activities conducted as part of Birds Australia's NHT funded project on bird monitoring in regions.

Shorebird taskforce

The steering group which oversaw the National Shorebird Conservation Project, funded by the NHT and managed by WWF Australia, may have an ongoing role in a new project aimed at developing a 'toolkit' for shorebird managers. Birds Australia attended a meeting in Canberra during November about a new project that is part of a series of projects aimed at enhancing wetland management through the regional NRM process.

Estuary management framework

Birds Australia was contracted to assist with a workshop to develop a decision-making framework to guide the management of the mouths of estuaries in southern New South Wales and Victoria, with the possibility of a similar approach being used in Western Australia. The project was run by Helen Arundle from Deakin University (Warrnambool).

Beak and feather disease

In mid 2005, the Federal Minister for the Environment and Heritage, Senator the Honorable Ian Campbell, approved the *Threat abatement plan for psittacine circoviral (beak and feather) disease affecting endangered psittacine species*. Birds Australia assisted in the development of the plan and has been invited to participate on the Threat Abatement Implementation Team. The plan can be viewed at <http://www.deh.gov.au/biodiversity/threatened/publications/tap/beak-feather>.

Partnerships

Birds Australia was invited to the 'Partnerships in business' program run by Rio Tinto. A series of dinners and presentations, featuring international partnership expert Ross Tennyson, discussed the role and merits of partnerships to both business and organisations such as Birds Australia. Birds Australia's CEO, Graeme Hamilton, attended an all day workshop run by Ross in Sydney.

What can you do to help birds?

The Nest Record Scheme is one of our greatest assets. If you are a former contributor, an Atlaser, or somebody who is interested in participating, why not fill in a data sheet when you detect bird breeding? Contact Andrew Silcocks at National Office (a.silcocks@birdsaustralia.com.au) for forms and instructions.



Left: The new signage at Cheetham Wetlands. Photo by Michael Weston

Below: A section of the pamphlet *Wetlands, shorebirds and your pets*.



Wingspan Dec 2005