

'Up nice and close': using birding scopes to enhance awareness of hooded plovers and alter perceptions of bird conservation strategies

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Introduction

Recent Australian research¹ shows that beach goers with greater awareness of the hooded plover also better understand the human threat to these beach-nesting birds. Moreover, those beach visitors with less knowledge about hooded plovers are more likely to report being inconvenienced by on-ground measures to protect threatened hooded plovers.¹ Not unexpectedly, dog walkers report more inconvenience associated with management exclusions (eg fences around dunes) and regulations (designated times for beach walking with dogs on leashes) than non-dog walkers.¹ These findings present the challenge to better raise awareness about hooded plovers for all beach visitors including dog walkers who tend to think that their own dog is less of a threat to hooded plovers than dogs in general.² The vulnerable status of the hooded plover continues to be a significant issue because increased human visitation to beaches, as well as high tides, foxes, horse riding, unleashed dogs, ravens, magpies and raptors continue to threaten their habitat.

Education, and consultation with stakeholders, can be effective in conveying a sense of 'ownership' of the problem, as research has shown in North America.^{3,4} Here too in Australia, an extensive and well managed, award winning community education strategy conducted by Birds Australia (now BirdLife Australia) has clearly increased local awareness about vulnerable hooded plovers and the threats they face.⁵ So the challenge becomes to think of creative ways and strategies for continuing to educate beach goers and raise their awareness without alienating and angering them by focusing on restrictions and regulated beach usage. One such creative way is to expand the research into related areas that work towards increasing pro-environmental attitudes and behaviours. We now know that a greater sense of connectedness to nature can promote health and well-being,⁶ and there is emerging evidence for the idea that "emotional association with nature leads to an expanded sense of self and greater valuing of non-human species, and so to pro-environmental behaviour" (pg. 298).⁷

A recent study using digital cameras with children found qualitative and anecdotal evidence to suggest that becoming more familiar with digital nature photography can influence connectedness to nature levels in children. The researcher emphasised the importance of finding creative ways to connect children and adults more with their 'sense of connectedness with nature'.⁸

In an informal pilot test prior to conducting the current study, members of the research team, that is, members of Friends of Bass Coast Hooded Plovers, trialled the idea of inviting beach goers (children and adults) to look through spotting scopes at hooded plovers and their chicks, in order to raise awareness about the birds, and in so doing provide some education about threats facing the birds. An almost universally positive reaction by beachgoers to their scope viewing experience encouraged the researchers to explore in greater depth how this scope viewing experience might impact on attitudes towards hooded plovers and the inclination of beach visitors to more explicitly express pro-environmental intentions to support hooded plover conservation management practices.

The project aimed to enhance community engagement and promote co-existence between beach visitors and threatened hooded plovers through inviting beach goers (both children and adults) to observe hooded plovers and their chicks through birding scopes and binoculars. It was hypothesised that getting such good, ‘close up’ views of nesting hooded plovers and (hopefully) their chicks and fledglings would not only increase awareness of the birds, but also enhance positive attitudes towards hooded plovers, and thereby contribute to pro-environmental attitude change reflected in supportive responses to behaving in protective ways towards hooded plovers in the future.

Method

Study Location

The study was conducted on three Bass Coast beaches: Inverloch, Cape Paterson and Harmers Haven, Victoria, Australia, throughout the latter part of the hooded plover breeding season — January through to April in 2013. Target beaches at those sites included: Point Norman Inverloch; Undertow Bay, Pea Creek Estuary and 2nd Surf and Wilsons Rd, Cape Paterson; and Coal Creek Estuary, Wreck Beach, and Waterfall Creek, Harmers Haven

Data Collection

Participants

Beachgoers were invited to voluntarily participate by researchers on designated Bass Coast beaches. Nine research volunteers spent 83.25hrs on beaches seeking participation. 100 beach visitors were interviewed after reading study information and signing consent forms. Children under 18 years of age were not surveyed but they *were* invited to view birds through scopes and binoculars as an educative experience, though their responses are not reported here.

Ethics

Ethics approval to conduct the project was received by Birdlife Australia, and study information and consent forms are attached (see Appendix A).

Equipment used

Viewing equipment included: 3 x Kowa TSN-663 angled spotting scopes with 20-60x eyepiece; 3 x Kowa C-661 stay cases; 3 x Manfrotto 190XB & 128RC Tripods; 3 x Olivon Tripod backpacks; and 6 x Nikon Monarch 10x24 binoculars.

Survey

The 25-item survey was in six parts, with two versions ‘scope early’ and ‘scope delayed’ (see appendix B). The survey questions together with the viewing experience took about 15 minutes. Surveys were sometimes filled out independently by respondents and at other times were filled out together with interviewers — depending on how many beach goers were stopped and asked to complete the survey at any one time. Survey participants were offered a ‘reward’ for completing the survey — a choice of ‘hooded plover educational material’: dog leads, dog frisbees, badges, stickers, postcards, and the opportunity to go into the draw for a canvas print of hooded plovers (thanks to Steve Johnson & Foons Photographics).

Demographic details of interviewees included: sex, age, postcode of main residence, and reasons for coming to the beach. *Part 1.* covered four questions on general attitudes to wildlife protection. Questions were answered on a 10 point Likert Scale from 'strongly agree' to 'strongly disagree' and sought attitudes towards the co-existence of beaches as wildlife habitat and locations for human recreation. *Part 2.* included three questions about hooded plover awareness: have you heard of, seen or seen signs about the hooded plover. *Part 3.* sought respondents' attitudes towards, or impressions of hooded plovers on seven dimensions (10 point Likert scale): common/rare; aggressive/harmless; ugly/beautiful; stupid/intelligent; unique & irreplaceable/insignificant; and intriguing/not at all interesting. *Part 4.* was the Inclusion of Nature in Self Scale⁹, a single item graphical measure to assess the extent to which an individual includes nature within his or her cognitive representation of self. This item contained a series of seven overlapping circles labeled "self" and "nature". The circle with the least overlap represented an individual who viewed him or herself as separate from nature. The circle with complete overlap represented a person who viewed him or herself as the same as nature. Participants were asked to "Please circle the picture below which best describes your relationship with the natural environment. How interconnected are you with nature?" The scale was scored by giving a numerical value to each of the seven overlapping circles on a scale of 1 to 7, with the lowest value associated with no overlap in the circles (no connection with nature) and the highest value associated with completely overlapped circles (complete connection with nature).

The final question on the survey was: *Now that you have had a closer look at the birds will it make you more protective of hooded plovers?*

Beachgoers were invited to look through the viewing scope or binoculars at one of two times whilst completing the survey: i) 'scope early' condition which came after *Part 2* (knowledge about the hooded plover) and before *Part 3* (attitudes towards or impressions of the hooded plover); or ii) 'scope delayed' condition which came after *Part 4* (Inclusion of Nature in Self Scale) but before the final survey question: *"Now that you have had a closer look at the birds will it make you more protective of hooded plovers?"*

After looking through the scope participants were also asked: *How would you best describe what it was like for you to look through the scope/binos at the hooded plovers? (ie describe your experience of seeing the birds).* Responses to this question were thematically coded and are recorded in the Results section below.

Data Analysis

Survey data were analysed using SPSS AMOS statistical package, version 21 (IBM, Chicago, IL) reporting on: means, standard deviations, frequencies, independent samples t-tests ($\alpha < .05$), and Pearsons product-moment correlations.

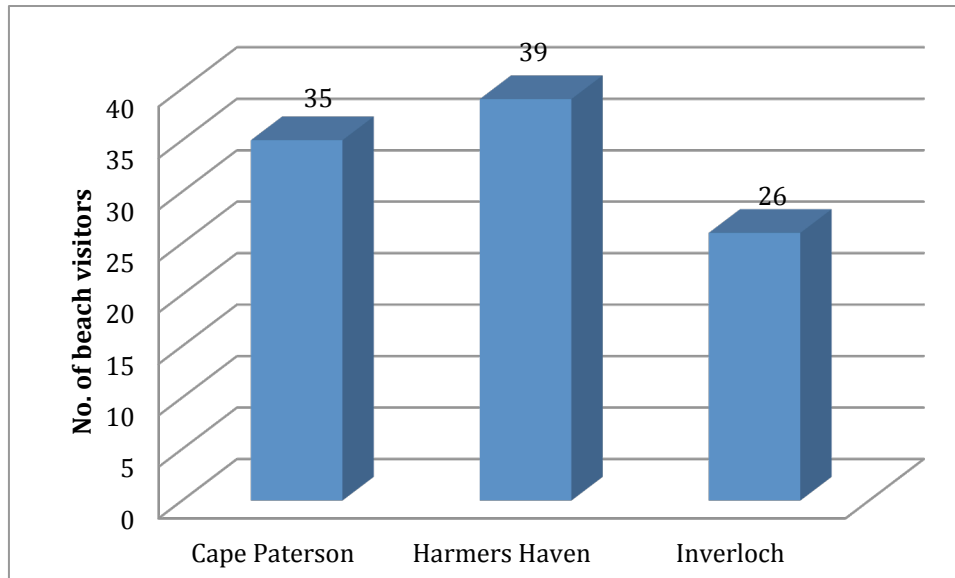
Qualitative responses to the question: *How would you best describe what it was like for you to look through the scope/binos at the hooded plovers? (ie describe your experience of seeing the birds)* were thematically coded with attention to content, process and emotional experience of respondents¹⁰.

Results

Background information

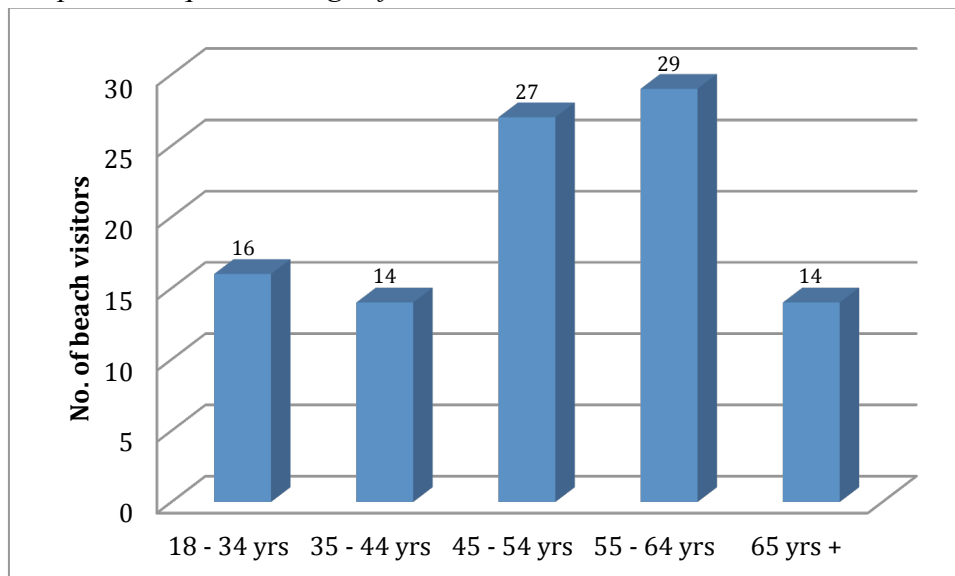
Of the 100 beach visitors who volunteered to be surveyed, 60 were female and 39 were male; with one person's gender not recorded. Fifty-four percent of surveys completed were the 'scope early' condition and 46% 'scope delayed'. Graph 1 shows that there was a fairly even spread of participants across the three survey sites, with a slightly smaller number being interviewed at Inverloch (Point Norman).

Graph 1: Frequencies. Where were beachgoers surveyed?



Graph 2 reveals that the three different Bass Coast beaches attracted a range of different age groups. However, the majority of adult beachgoers surveyed were between the ages of 45 and 64 years.

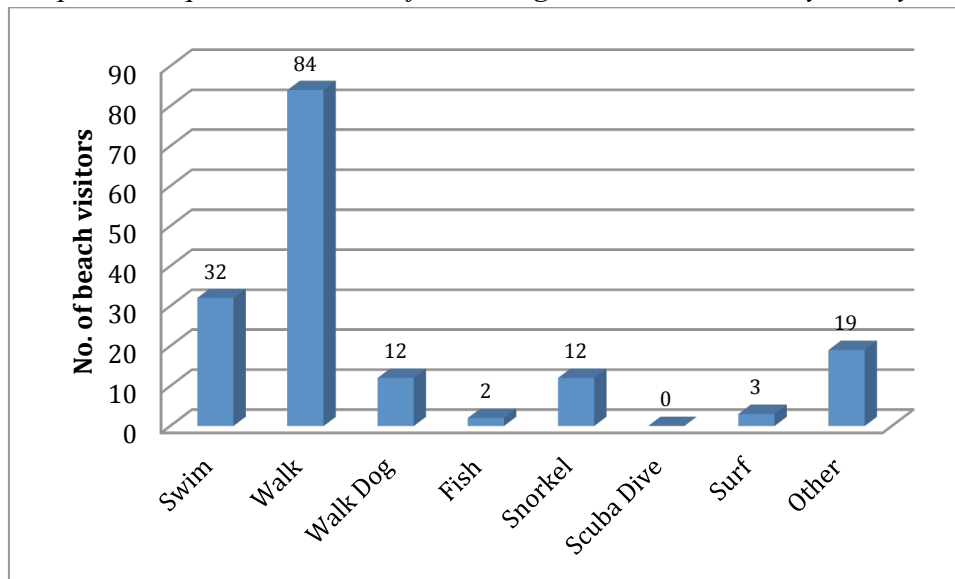
Graph 2: Frequencies. Age of beach visitors



Many visitors reported coming to the beach for a walk. Inadvertently, not *all* dog walkers were recorded by researchers, because when visitors were asked why they were on the beach, they had answered 'walking' rather than 'dog walking' specifically, leading to a significant under-recording of 'dog walkers'. As noted below, this is a significant study limitation. Swimming was also a

popular reason for a beach visit. See Graph 3 for more on the activities that drew those surveyed to the beach.

Graph 3: Frequencies. Reason for visiting the beach on the day surveyed



There was generally high prior knowledge of hooded plovers with most beachgoers reporting having had some awareness of the hooded plover prior to being approached to participate in the survey. Seventy-nine per cent had heard of the bird previously; 64% mentioned having sighted the threatened species on a prior occasion; and 74% had noted beach signage pertaining to the birds. The majority of participants had seen a Hooded Plover on a beach on the Bass Coast (study region), however, 4% had also seen the birds on the Surf Coast, 2% the Mornington Peninsula, 1% Phillip Island and 1% Far West Victoria.

Similar proportions of males and females, different age groups, different locations and people with little or no prior knowledge of the hooded plover were represented in both the ‘*Scope Early*’ and ‘*Scope Delayed*’ groups – (see Table 1, Appendix C) for details.

Of the 100 surveys completed, beach visitors observed hooded plovers in the following life stages: 30% were of the adult birds, 23% of the adult/s incubating eggs and 47% of the adults with their chicks. Of the chick observations, 40.4% were of older chicks close to fledging (week 5), 27.7% of chicks aged 4 weeks, 10.6% aged 2 weeks and 21.3% in their first week after hatching.

Attitudes to wildlife protection

The majority of visitors surveyed strongly endorsed the beach as an important habitat for wildlife and expressed a very favourable attitude towards settings limits on housing and facility development for the purpose of protecting wildlife – (see Graphs 4 & 5, Appendix C). Many were also of the opinion that current restrictions and regulations governing beach use, such as dog walking rules, were not totally unreasonable; and that it was important to place some limits on human recreation activities to safeguard wildlife. Graphs 6 and 7 show attitudes varied somewhat more in relation to the latter two topics, including a small contingent of beachgoers in support of the

idea that current rules and wildlife protection measures in place were excessive; and that ensuring the full range of leisure opportunities be available to human beings is more important than wildlife preservation.

Overall, many beach visitors interviewed during the survey period expressed similar views towards wildlife protection, regardless of their gender, age, the order in which they viewed the hooded plover on the day of the survey, whether or not they had some prior awareness of the threatened species or of the beach location they visited. There were two statistically significant differences that did emerge though. In comparison to their counterparts, beachgoers who reported having seen the hooded plover prior to the day of the survey, and those who stated dog walking as one of the reasons for their visit to the beach, were in stronger disagreement with the importance of prioritising unrestricted opportunities for human recreation at the beach at the expense of wildlife protection (Had seen HP, $\bar{M}=7.60$, $n=63$; Had not seen HP, $\bar{M}=6.53$, $n=34$; $t(95)=-2.71$, $p<.01$) (Dog walker, $\bar{M}=8.33$, $n=12$; Non dog walker, $\bar{M}=7.03$, $n=86$; $t(26.03)=3.65$, $p<.01$) (where 1=strongly agree, and 10=strongly disagree).

Impressions of, or attitudes towards, the hooded plover

When given an opportunity to comment on the hooded plover, beachgoers were strongly inclined to rate the creature as rare (vs. common), harmless (vs. aggressive), beautiful (vs. ugly), unique (vs. insignificant), and intriguing (vs. not at all interesting). Most reported highly valuing the hooded plover as a species worth conserving. Opinions as to whether the threatened bird was stupid or intelligent varied more. Sixty-four per cent of those surveyed speculated that the hooded plover was located more towards the intelligent end of the spectrum. However a significant number ($n=29$) declined to make a judgement at all.

No statistically significant differences were observed in the average views held about the hooded plover by beachgoers who were given the opportunity to view the bird 'up close' before commenting on its qualities, compared with the attitudes of visitors yet to use a birding scope or binoculars when completing this section of the questionnaire. Nor did average responses differ significantly by location, gender, age or whether signage about the creature had been spotted.

Visitors recorded as coming to the beach to walk their dog differed slightly in their responses to the hooded plover when compared with those who did not list dog walking amongst their reasons for the visit. Dog walkers expressed a slightly more favourable view of the species on average in respect to its beauty (Dog walkers, $\bar{M}=9.50$, $n=12$; Non dog walker, $\bar{M}=8.88$, $n=82$; $t(23.18)=2.23$, $p<.05$), intelligence (Dog walkers, $\bar{M}=9.10$, $n=10$; Non dog walker, $\bar{M}=7.59$, $n=58$; $t(21.91)=3.43$, $p<.01$), intrigue (Dog walkers, $\bar{M}=9.55$, $n=11$; Non dog walker, $\bar{M}=8.81$, $n=70$; $t(17.04)=2.26$, $p<.05$), and value (Dog walkers, $\bar{M}=9.73$, $n=11$; Non dog walker, $\bar{M}=9.11$, $n=74$; $t(23.87)=2.53$, $p<.05$).

On average, survey respondents who reported greater awareness of the hooded plover assigned slightly higher scores with respect to its uniqueness (Had heard of HP, $\bar{M}=9.19$, $n=69$; Had seen HP, $\bar{M}=9.39$, $n=54$) than beach visitors who had not yet heard of the creature ($\bar{M}=8.29$, $n=14$) or were yet to see it ($\bar{M}=8.39$, $n=28$). These differences were statistically significant (Heard, $t(81)=2.38$, $p<.05$; Seen, $t(39.14)=2.99$, $p<.01$). Those who had caught sight of the species

previously showed slightly more interest ($M=9.13$; $n=54$) in the bird than those who had not ($M=8.40$, $n=25$; $t(77)=2.38$, $p<.05$) (where 1=not at all interesting and 10=intriguing).

Connectedness to nature

Only 2% of the 100 beach visitors who volunteered to be surveyed described themselves as having no connection whatsoever to the natural environment. A significant number ($n=61$) reported being strongly interconnected with nature, with 14 viewing themselves as being completely at one with the natural environment.

There were no statistically significant differences in the average ratings of “Connectedness” by location, gender, age, previous awareness of the hooded plover, or timing of viewing experience (early or delayed). Statistically significant relationships were, however, observed between a sense of connection to nature and several attitudes held by beachgoers towards wildlife protection and the hooded plover. (These associations were investigated using Pearson product-moment correlation coefficients; results are presented in Table 3, Appendix C).

There was a small association between a greater sense of interconnectedness and: a) a stronger belief that development on coasts should be limited; b) more opposition of the view that beaches should provide unrestricted opportunities for human recreation; and c) perceptions of the hooded plover as rare, intriguing and as well worth conserving. A stronger connection with the natural environment was also associated with perceptions of the species as intelligent and unique/irreplaceable. These two associations were of moderate strength. Lastly, beach visitors who felt a greater sense of affinity for nature predicted that they would be very likely to protect the hooded plover in the future.

Protective behaviour towards hooded plovers following ‘close up’ observation

A large number of beachgoers consulted during the survey period noted that their experience of viewing the birds up close would make them highly likely to comply with measures designed to protect the threatened species. On average, responses did not vary statistically by location, gender, age, previous awareness of the hooded plover, or whether viewing took place earlier or later in the survey. Pearson product-moment correlation coefficients (presented in Table 3) did show a moderate, statistically significant relationship between predictions made by beachgoers about their protectiveness towards the species and two attitudes towards wildlife protection. Unsurprisingly a strong endorsement of the beach as an important habitat for wildlife and a favourable attitude towards settings limits on housing and facility development tended to correlate with a greater commitment to protecting hooded plovers in the future. A statistically significant association was also observed between supportive responses to shore bird conservation and perceptions of the hooded plover as beautiful.

The actual experience of scope viewing: what was it really like to see the hooded plover ‘up nice and close’?

Ninety-five of the 100 participants responded to the question asking them to describe their experience of looking through the scope. The thematic analysis conducted on participants’ answers

is reported below. Some respondents had more than one theme embedded in their answers, hence the percentages adding up to more than 100%. Full quotes are in Appendix D.

Overwhelmingly, viewing hooded plovers on the beach through birding scopes was an extremely positive experience. In fact, of the 95 participants who responded to this question there were no negative reactions. There was a clear relationship with the positive experience of looking through the scopes, and the pronouncement that as a result of this experience beach goers would be more likely to be protective of hooded plovers in the future (if indeed they weren't already cognisant of, and compliant, towards management strategies).

Around one-quarter of participants described their positive viewing experience in more muted terms, such as “interesting... rewarding... and nice”. Whereas 21% of participants had a more excited, ‘wow’ response, exclaiming things like “I'll be blowed! Bugger me!... So exciting, amazing, interesting, unexpected... Bloody hell.”

A further one-quarter of participants articulated their positive experience in the context of the clarity of the optics and how fantastic it was to look through a birding scope rather than simply through binoculars, and how terrific it was to see the birds ‘up close’, thereby affirming the title of the project — ‘Up nice and close’.

A similar number of observers (around 25%) referred to the aesthetics and appearance of the bird itself, with a strong response to its ‘cuteness, beauty and its striking features, eg red eyes’. Particular delight was expressed in seeing family configurations and of course the chicks, themselves.

Smaller numbers noted the sense of intimacy in the viewing experience and others also noted that it was an excellent way to view hooded plovers up close but not disturb them in their natural habitat. Related to this was the strong sense of appreciation in having the privilege of seeing the birds in their natural environment, and the sense too of this being an educational experience. A small number of participants also commented on threats to the birds.

Discussion

As part of this exercise, one hundred beachgoers were given the opportunity to connect with nature, and get an enlarged and ‘up close’ view the hooded plover, without disturbing the bird or its habitat. A range of people were thus educated about the hooded plover in the process and about the threats to these beach-nesting birds. Even though many claimed to have had prior knowledge of the species, and a number stated they had actually sighted the bird prior to the day of the survey, the vast majority also reported that now having had a close up view they were more likely to act in ways that would contribute to hooded plover protection. There is little doubt that using scope-viewing on beaches could, and perhaps even should, become a significant part of beach-nesting shore-bird awareness raising, and education campaigns.

The majority of those surveyed were reportedly not opposed to the conservation of wildlife at beaches, including dog walkers! However, any findings about dog walkers in this report should be

considered cautiously because of the reported study limitation that not all dog walkers were categorised as such, but instead may have just been recorded as ‘walkers’.

Most beach visitors appeared to regard the hooded plover highly, and valued it as a species worth preserving. Largely the birds were considered harmless, beautiful, unique and intriguing. This is an interesting finding in and of itself. Those with prior knowledge of the bird had a greater appreciation of its uniqueness and were more likely to consider it intriguing.

Contrary to expectations, no differences were observed in the average responses of beachgoers who were given the opportunity to view the bird ‘up close’ before commenting on its qualities compared with the attitudes of visitors yet to use a birding scope or binoculars when commenting on their impressions of hooded plovers. Nor did the two groups differ significantly in terms of the extent to which they felt connected to nature. The thinking behind having a ‘scope early’ and a ‘scope delayed’ condition in the study was to explore if the experience of seeing the birds up close would actually change viewers’ impressions of, or attitudes towards, hooded plovers. Because this particular sample of predominantly older middle-aged beach goers was already so skewed towards seeing the birds in a positive light, the reverse order of scope viewing had no impact. But then too, there was no impact in the smaller, younger aged group of participants either (who also largely viewed the birds positively). The fact that there existed such high prior knowledge of the bird, suggests too that previous community programs focussing on the plight of the birds, and the dedicated work of both Birdlife Australia and the Convenor of Friends of Bass Coast Hooded Plover, have contributed to educating the Bass Coast community about the conservation needs of the hooded plover.

An obvious limitation of the study was that it tapped into beachgoer’s *intentions* to engage in pro-environmental behaviours. We remain unsure how the ‘up close’ experience will actually influence beach use (eg dog walking behaviour) and tolerance for hooded plover conservation management strategies, though we hope that there isn’t a major gap between espoused values and practice when it comes to protecting beach-nesting shorebirds!

Finally, our experience of doing the research itself was that it was a real buzz to show beach-goers the birds through telescopes, and it felt educative, awareness-raising, and the viewers’ excitement was contagious. As noted, there was an almost universal positive and excited response to the scope viewing by beach goers, and both adults and children often shared their delight in viewing the birds — a fun experience for the whole family. We’ll certainly be using the scopes in future in our Bass Coast hooded plover conservation work, and we thank BirdLife Australia and Caring for Country for the opportunity to conduct this study.

Acknowledgements

The research team would like to thank the project funders BirdLife Australia and Caring for Country. Darren Hill, Ranger in Charge at Parks Victoria supported the project from its inception, gave feedback on early drafts, and provided in-kind office assistance. Particular thanks goes to Michelle Wills who did the quantitative analysis of the survey data, and contributed to the final report write-up. Grainne Maguire also did some of the preliminary data analysis. Jo Treverton from the Royal Society for the Protection of Birds in the UK spent many hours on data entry and survey work, traipsing Bass Coast beaches in the hot Australian sun. The volunteer field workers also spent many

hours in sun, rain and high winds, so congratulations for managing to hold onto your surveys in such ferocious winds: Barry Castle, Bronwyn Dahlstrom, Karren Dahlstrom, Wendy Davies, Graeme Henry, Stephen Johnson, Luisa Macmillan, Rosemary Patterson, Amaryll Perlesz and Linda Senhenn. Foons Photographics in Wonthaggi generously provided the enlarged canvas print of a flock of Hoodies (the prize given to a lucky respondent whose name was drawn from a baseball cap) — the photo being taken by the indefatigable Steve Johnson on one of his timeless and productive beach walks. And thanks too to BirdLife Australia for some of the freebies given to survey participants — the dog walkers really loved their leads and we hope they'll use them!

Appendix A



PLAIN LANGUAGE STATEMENT AND CONSENT FORM

Plain Language Statement

Date:

Full Project Title: 'Up nice and close': using birding scopes to enhance awareness of Hooded Plovers

Researchers: Amaryll Perlesz, Stephen Johnson, Rosemary Paterson, Dr. Grainne Maguire

Dear Beach User,

This letter is to invite you to participate in a research project, which examines how beach users appreciate observing Hooded Plovers through telescopes. This information will help tailor education and awareness programmes to enhance awareness of this species. This research is being conducted by Bass Coast Friends of the Hooded Plover Group and **totally** funded by **BirdLife Australia**.

You have been randomly selected as a beach goer. Whether you agree to take part in the project is completely up to you. This project involves you answering some question which will take about 10 minutes, and you will be invited to view Hooded Plovers through the telescope. If you would like to take part we have some dog leads to give away, or you may prefer to go into a draw for a prize. The winner will be announced at the end of March, 2013 (ie towards the end of the Hooded Plover breeding season).

You will remain anonymous, this consent form will be separated from your survey results. Only summarised, generalised results will be published to ensure your anonymity.

If you agree to take part in the project, you should fill out the consent form. Consent forms will be kept securely for at least 6 years, then destroyed. Withdrawal from this project will not be possible once the information has been de-identified. Participants are invited to contact the researchers should they wish to obtain a summary of the results.

If you require further information, wish to withdraw your participation or if you have any problems concerning this project, you can contact the researcher: Mr. Stephen Johnson, Co-ordinator Bass Coast Friends of the Hooded Plover Group 0429 188 330 or email: johnsons15@bigpond.com

Thank you for your time.



Consent Form

Date:

Full Project Title: 'Up nice and close': using birding scopes to enhance awareness of Hooded Plovers

I have read and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language to keep.

The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

Please tick this box if you do **NOT** wish to receive your free gift ☐

Please tick this box if you do **NOT** wish to be entered into the prize draw ☐

Participant's Name (printed)

Signature Date

Email Telephone

Please return to:

Mr. Stephen Johnson, Co-ordinator Bass Coast Friends of the Hooded Plover Group

Appendix B
'Up nice and close' Survey —Scope Early

Name of interviewer/s:

Date (and day of week): **Time of day:**

Beach site & Hoodie pair under observation:

Details of Interviewee:

1. Sex:

☐ Male ☐ Female

2. Age:

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75-84 ☐ 85+

3. Postcode of main residence:

4. For what reason/s have you come to the beach? (Tick as many as apply)

☐ swimming ☐ walking ☐ dog walking ☐ fishing ☐ snorkeling ☐ scuba diving ☐ surfing

☐ other

Part 1. Attitudes to Wildlife Protection

5. Beaches are important habitats for wildlife.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

6. Development on coasts (eg more housing and facilities) should be limited to ensure protection of wildlife.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

7. Wildlife protection rules (eg dog walking restrictions) limiting human activities on beaches have gone too far.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

Part 4. Attitudes Towards the Hooded Plover

I am interested in your *impressions* of hooded plovers, even if you don't feel you know much about them (see over page).

16. "On a scale where 1 equals 'common' and 10 equals 'rare', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
common									rare	Don't know/couldn't say

17. "On a scale where 1 equals 'aggressive' and 10 equals 'harmless', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
aggressive									harmless	Don't know/couldn't say

18. "On a scale where 1 equals 'ugly' and 10 equals 'beautiful', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
ugly									beautiful	Don't know/couldn't say

19. "On a scale where 1 equals 'stupid' and 10 equals 'intelligent', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
stupid									intelligent	Don't know/couldn't say

20. "On a scale where 1 equals 'unique & irreplaceable' and 10 equals 'insignificant', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
Unique & irreplaceable									insignificant	Don't know/couldn't say

21. "On a scale where 1 equals 'intriguing' and 10 equals 'not at all interesting', which number indicates how you would describe hooded plovers?"

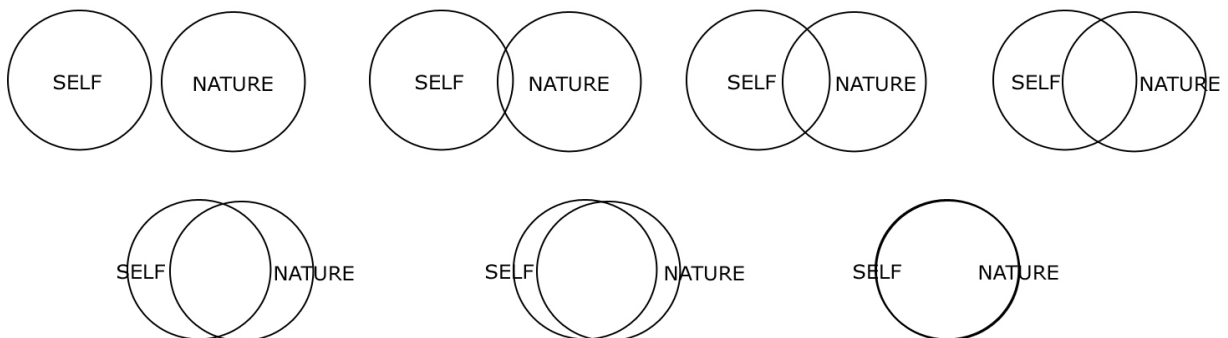
1	2	3	4	5	6	7	8	9	10	999
Intriguing									Not at all interesting	Don't know/couldn't say

22. How much do you value the hooded plover as a threatened species worth conserving?

1	2	3	4	5	6	7	8	9	10	999
Very highly									Not at all	Don't know/couldn't say

Part 5 Inclusion of Nature in Self Scale

23. Please circle the picture below that best describes your relationship with the natural environment. How interconnected are you with nature?



24. What things can you recommend for improving the conservation of hooded plovers?

.....

.....

.....

.....

25. Now that you have had a closer look at the birds will it make you more protective of hooded plovers?

1	2	3	4	5	6	7	8	9	10	999
Very likely									Very unlikely	N/A I already comply

										with signage requests
--	--	--	--	--	--	--	--	--	--	-----------------------------

Part 6. Field notes for Interviewer — don't forget to fill out your Observer Site Log

'Up nice and close' Survey — Scope Delayed

Name of interviewer/s:

Date (and day of week): Time of day:

Beach site & Hoodie pair under observation:

Details of Interviewee:

1. Sex:

☐ Male ☐ Female

2. Age:

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75-84 ☐ 85+

3. Postcode of main residence:

4. For what reason/s have you come to the beach? (Tick as many as apply)

☐ swimming ☐ walking ☐ dog walking ☐ fishing ☐ snorkeling ☐ scuba diving ☐ surfing

☐ other

Part 1. Attitudes to Wildlife Protection

5. Beaches are important habitats for wildlife.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

6. Development on coasts (eg more housing and facilities) should be limited to ensure protection of wildlife.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

--	--	--	--	--	--	--	--	--	--	--

7. Wildlife protection rules (eg dog walking restrictions) limiting human activities on beaches have gone too far.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

8. It is more important that beaches provide unrestricted opportunities for human recreation than wildlife protection.

1	2	3	4	5	6	7	8	9	10	999
Strongly agree									Strongly disagree	Don't know/couldn't say

Part 2. Hooded Plover Awareness

9. Have you heard of the hooded plover?

☐ Yes ☐ No

10. Have you ever seen a hooded plover?

☐ Yes ☐ No Where?

11. Have you ever seen signs about the hooded plover at the beach?

☐ Yes ☐ No Where?

Part 3. Attitudes Towards the Hooded Plover

I am interested in your *impressions* of hooded plovers, even if you don't feel you know much about them.

12. "On a scale where 1 equals 'common' and 10 equals 'rare', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
common									rare	Don't know/couldn't say

13. "On a scale where 1 equals 'aggressive' and 10 equals 'harmless', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
aggressive									harmless	Don't know/couldn't

											say
--	--	--	--	--	--	--	--	--	--	--	-----

14. "On a scale where 1 equals 'ugly' and 10 equals 'beautiful', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
ugly									beautiful	Don't know/couldn't say

15. "On a scale where 1 equals 'stupid' and 10 equals 'intelligent', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
stupid									intelligent	Don't know/couldn't say

16. "On a scale where 1 equals 'unique & irreplaceable' and 10 equals 'insignificant', which number indicates how you would describe hooded plovers?"

1	2	3	4	5	6	7	8	9	10	999
Unique & irreplaceable									insignificant	Don't know/couldn't say

17. "On a scale where 1 equals 'intriguing' and 10 equals 'not at all interesting', which number indicates how you would describe hooded plovers?"

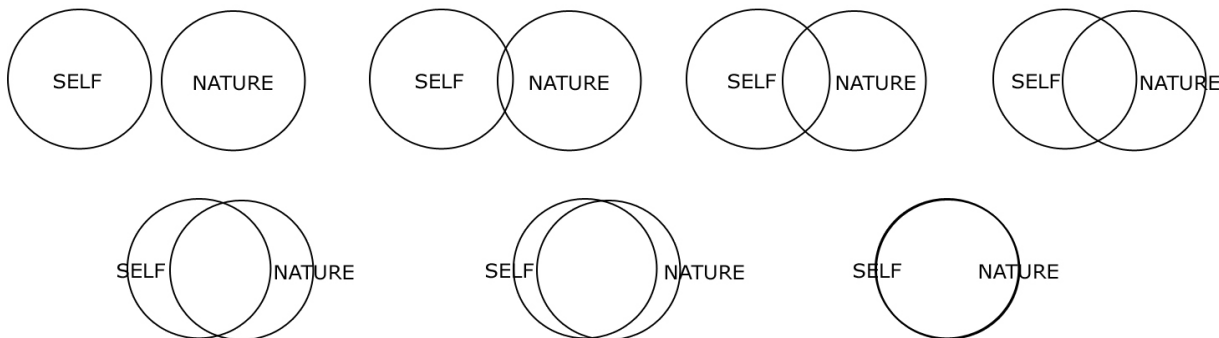
1	2	3	4	5	6	7	8	9	10	999
Intriguing									Not at all interesting	Don't know/couldn't say

18. How much do you value the hooded plover as a threatened species worth conserving?

1	2	3	4	5	6	7	8	9	10	999
Very highly									Not at all	Don't know/couldn't say

Part 4 Inclusion of Nature in Self Scale

19. Please circle the picture below that best describes your relationship with the natural environment. How interconnected are you with nature?



Part 5. Viewing Through the Spotting Scope or Binoculars

20. Was the hooded plover what you expected? ☐ Yes ☐ No ☐ Don't Know

21. If No, how was it different?

.....

22. How would you best describe what it was like for you to look through the scope/binos at the hooded plovers? (ie describe your experience of seeing the birds)

.....

23. How could we improve this experience of scope viewing for you?

.....

24. What things can you recommend for improving the conservation of hooded plovers?

.....

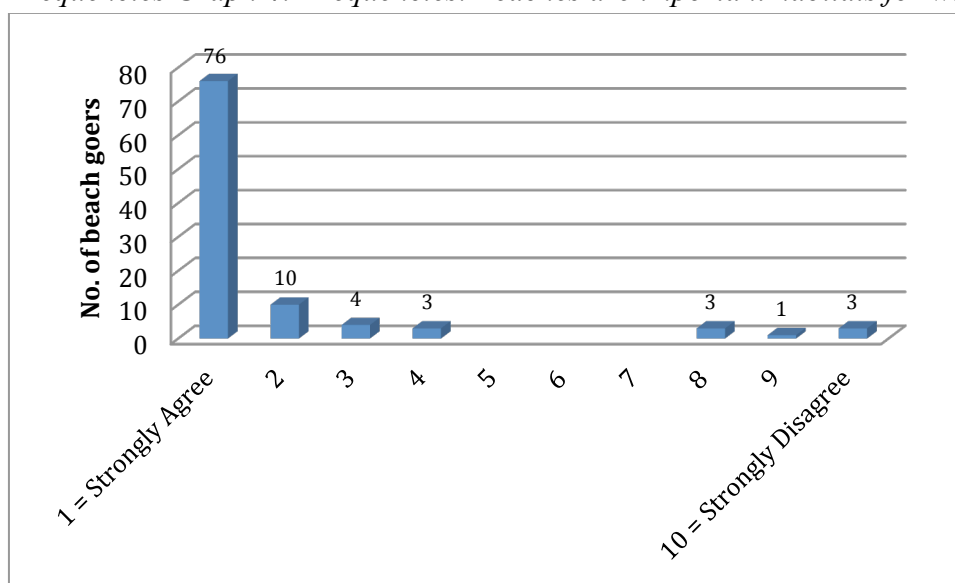
25. Now that you have had a closer look at the birds will it make you more protective of hooded plovers?

1	2	3	4	5	6	7	8	9	10	999
Very likely									Very unlikely	N/A I already comply with signage requests

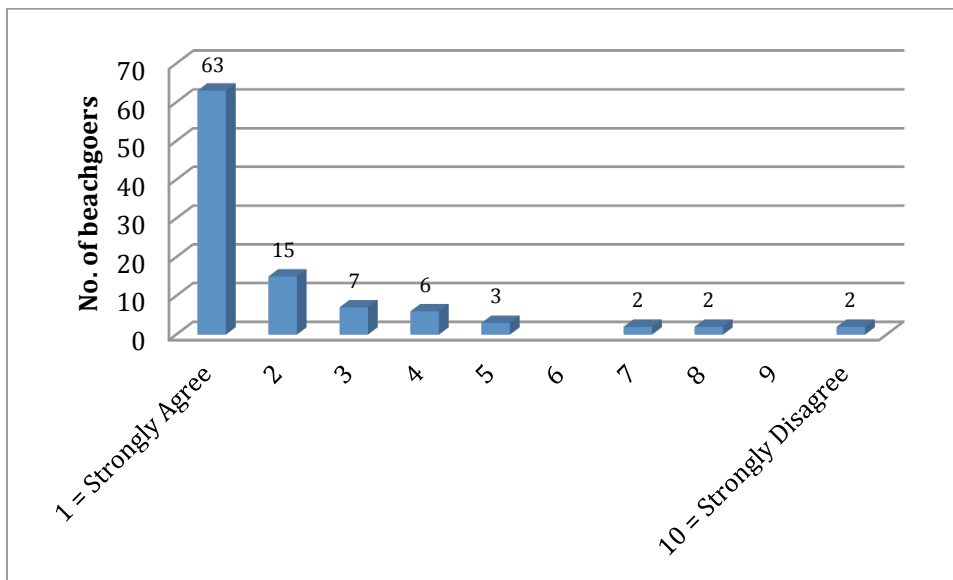
Part 6. Field notes for Interviewer— don't forget to fill out your Observer Site Log

Appendix C

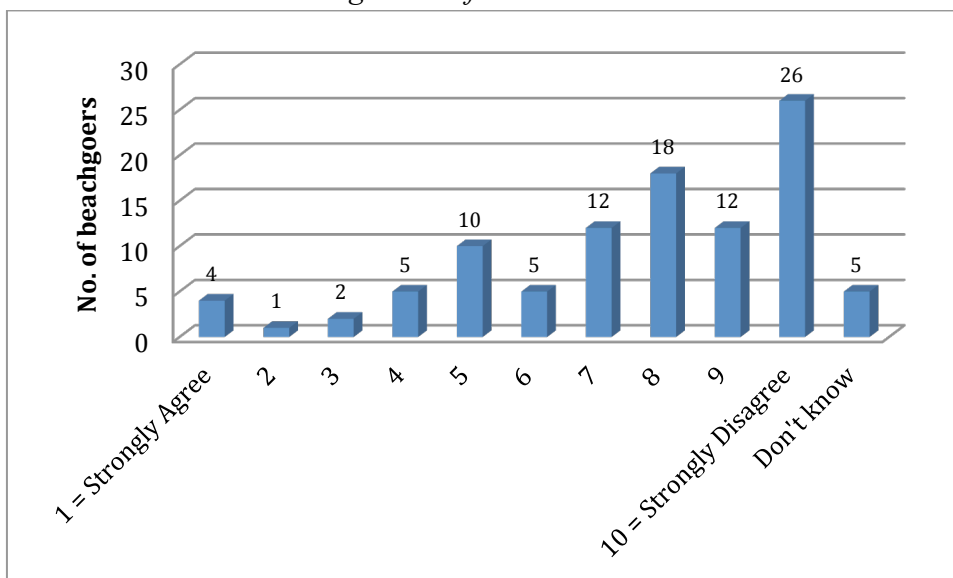
Frequencies Graph 4: Frequencies. Beaches are important habitats for wildlife.



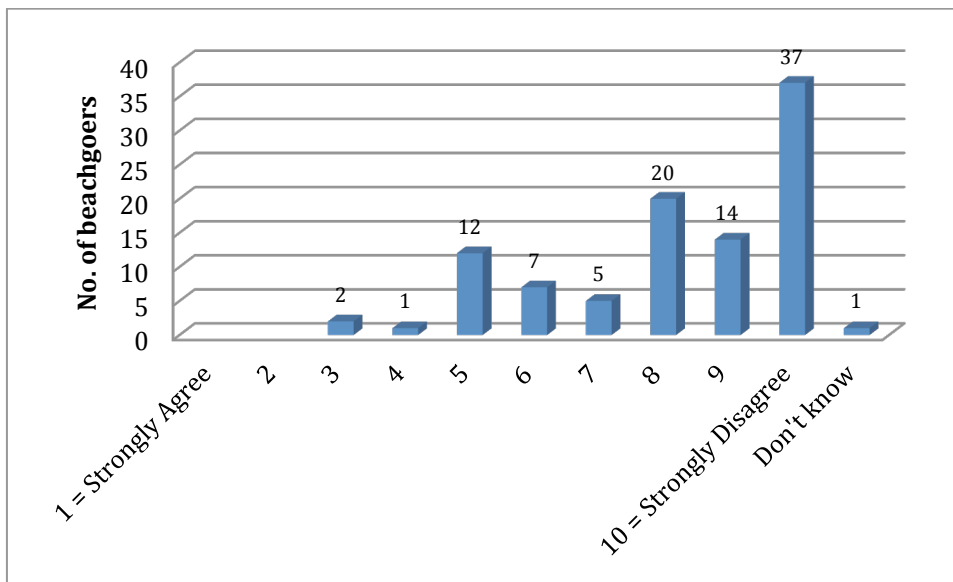
Graph 5: Frequencies. Development on coasts (e.g., more housing and facilities) should be limited to ensure the protection of wildlife.



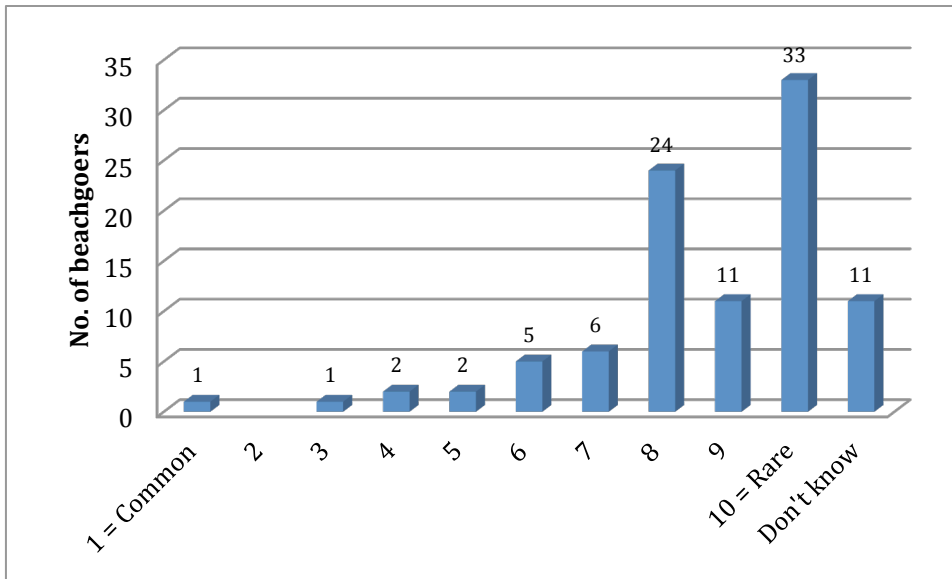
Graph 6: Frequencies. Wildlife protection rules (e.g., dog walking restrictions) limiting human activities on beaches have gone too far.



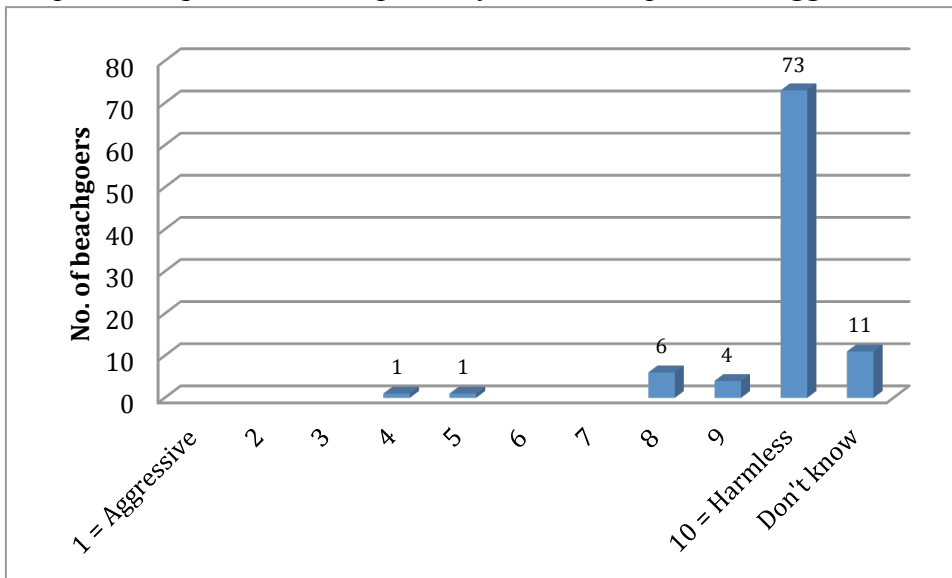
Graph 7: Frequencies. It is more important that beaches provide unrestricted opportunities for human recreation than wildlife protection



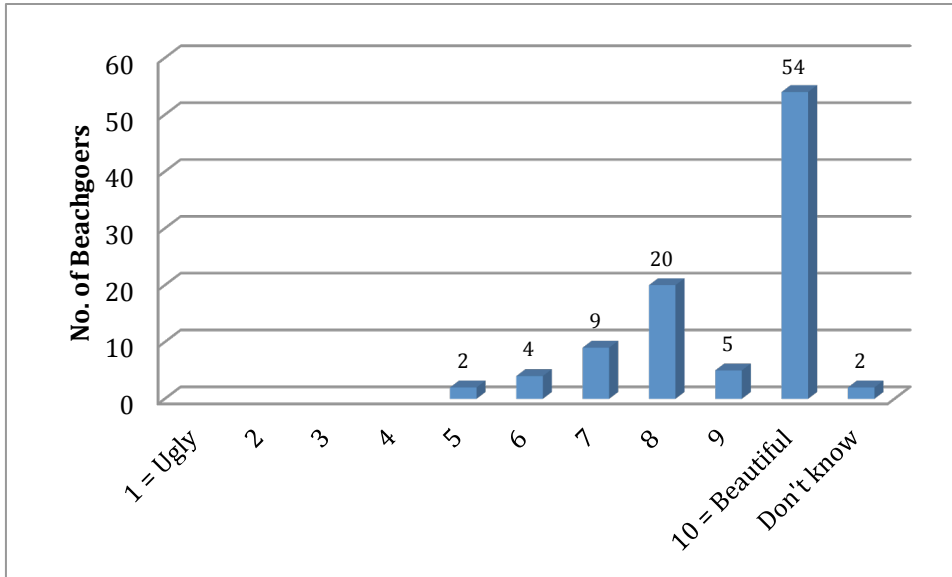
Graph 8: Frequencies. Perceptions of the hooded plover as common vs. rare



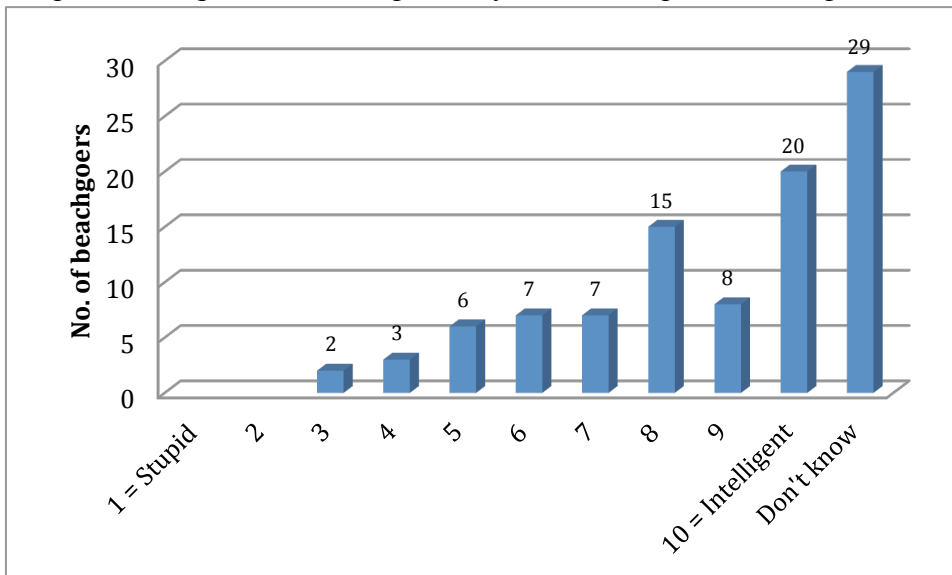
Graph 9: Frequencies. Perceptions of the hooded plover as aggressive vs. harmless



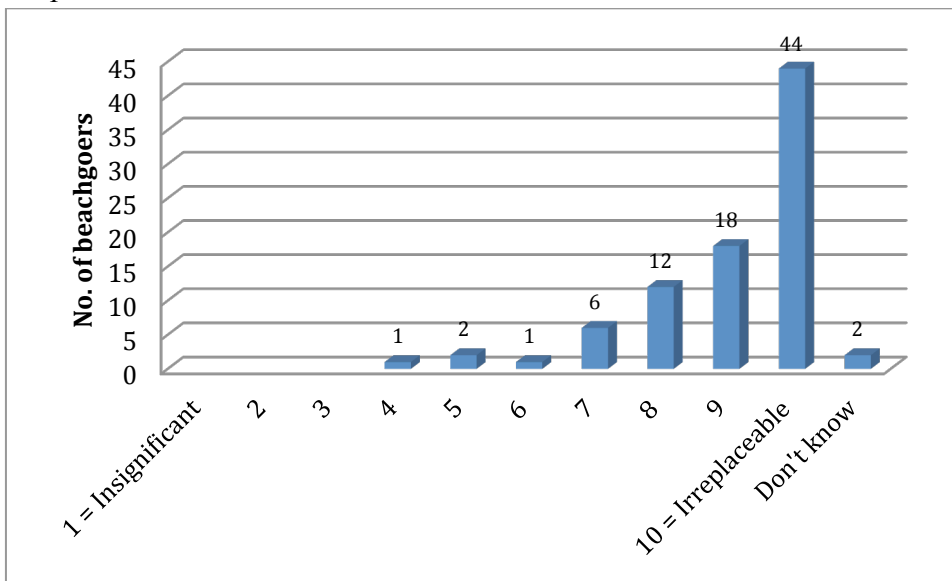
Graph 10: Frequencies. Perceptions of the hooded plover as ugly vs. beautiful



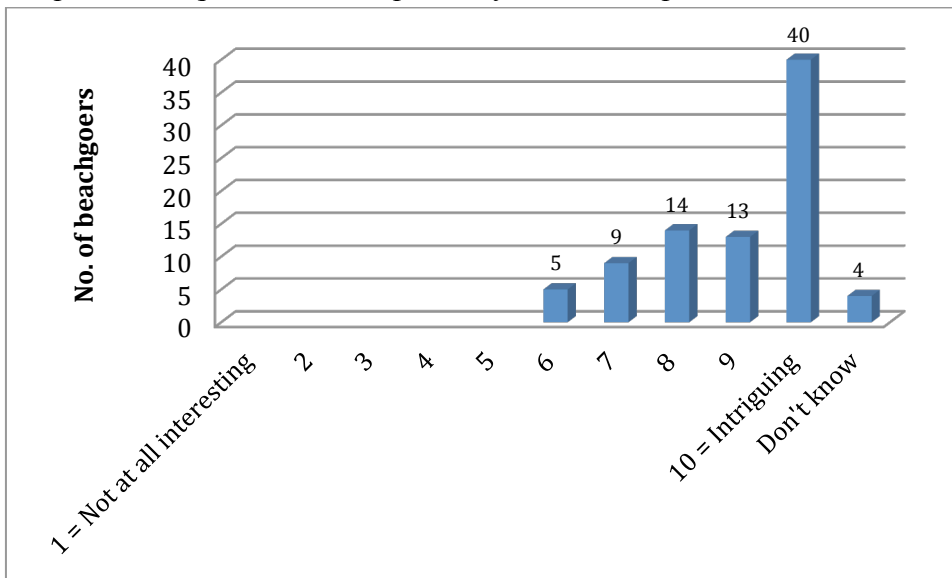
Graph 11: Frequencies. Perceptions of the hooded plover as stupid vs. intelligent



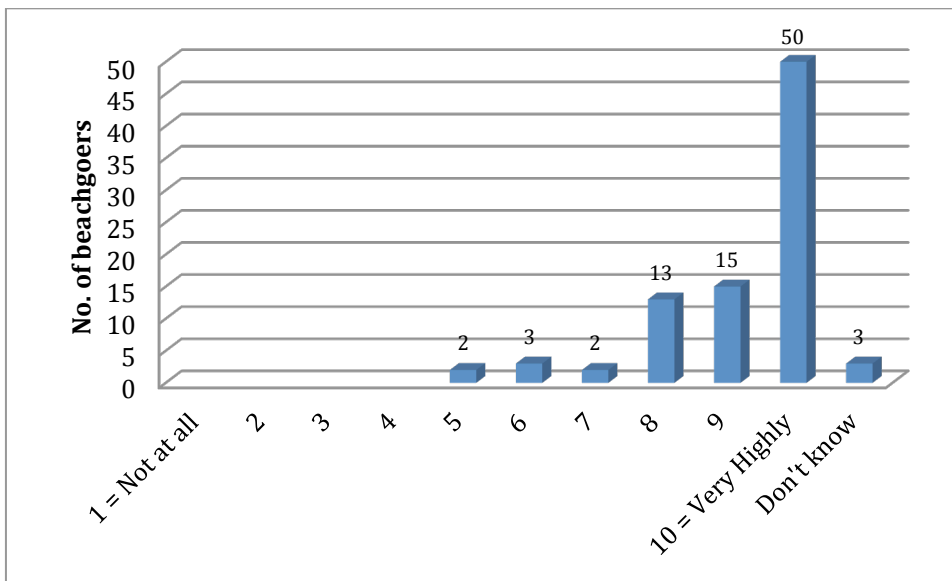
Graph 12: Frequencies. Perceptions of the hooded plover as insignificant vs. unique & irreplaceable



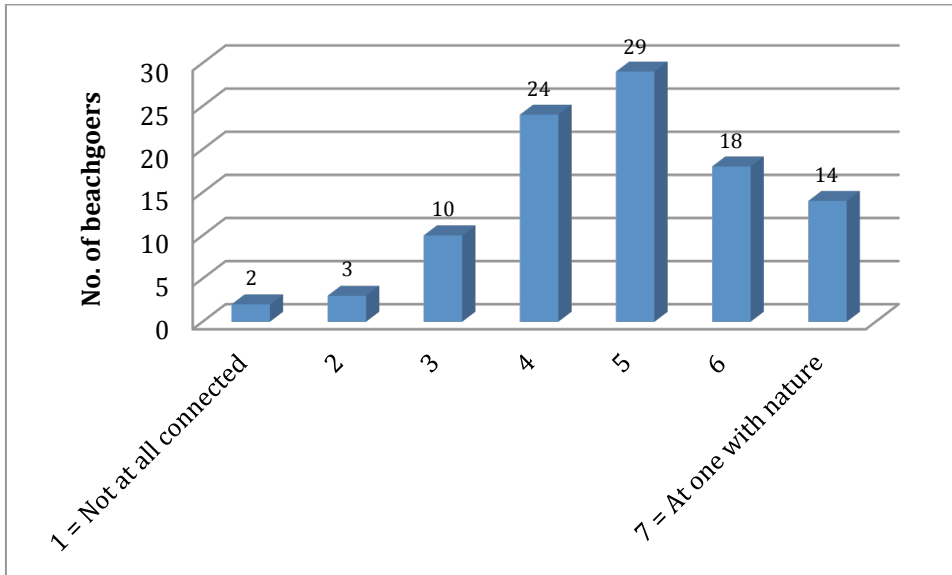
Graph 13: Frequencies. Perceptions of the hooded plover as not at all interesting vs. intriguing



Graph 14: Frequencies. Perceptions of the hooded plover as not at all worth conversing vs. highly valuable



Graph 15: Frequencies. Relationship with natural environment.



Graph 16: Frequencies. Likelihood of being more protective of hooded plovers having viewed them 'up close'.

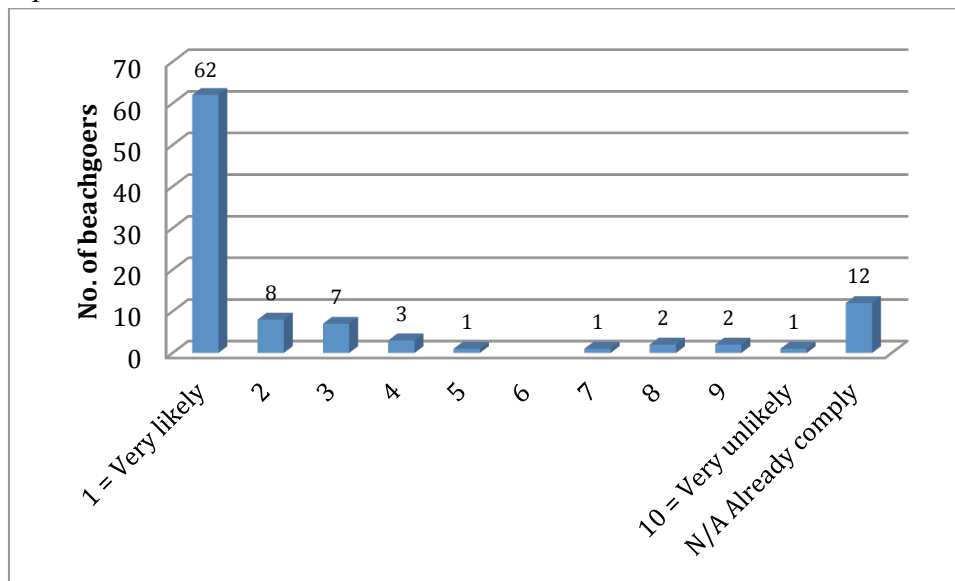


Table 1 Frequencies. Age, gender, & awareness of hooded plover by order of “up close” experience

	<i>Scope early</i>	<i>Scope delayed</i>	
<i>Females</i>	30	30	$\chi^2(1)=.50, p>0.05$
<i>Males</i>	16	23	
<i>18-34yrs</i>	8	8	$\chi^2(4)=1.47, p>0.05$
<i>35-44yrs</i>	7	7	
<i>45-54yrs</i>	11	16	
<i>55-64yrs</i>	15	14	
<i>64yrs+</i>	5	9	
<i>Had not heard of HP</i>	9	11	$\chi^2(1)=<.001, p>0.05$
<i>Had heard of HP</i>	36	43	
<i>Had not seen the HP</i>	12	22	$\chi^2(1)=1.39, p>0.05$
<i>Had seen the HP</i>	32	32	
<i>Had not seen signs about HP</i>	9	16	$\chi^2(1)=.75, p>0.05$
<i>Had seen signs about HP</i>	36	38	
<i>Cape Paterson</i>	13	22	$\chi^2(2)=1.87, p>0.05$
<i>Harmers Haven</i>	19	20	
<i>Inverloch</i>	14	12	

Table 2. Means

Survey item	<u>M</u> Whole Sample	<u>M</u> Scope Early	<u>M</u> Scope Delayed	<u>M</u> Female	<u>M</u> Male	<u>M</u> Dog Walking	<u>M</u> Not Dog walking	<u>M</u> Has NOT heard of HP	<u>M</u> Has heard of HP	sd
1. WPatt1	1.83	1.76	1.89	1.80	1.90	3.08	1.66	1.95	1.81	
2. WPatt2	2.03	2.24	1.85	2.03	2.05	2.08	2.02	2.40	1.95	
3. WPatt3	6.45	6.41	6.49	6.62	6.28	6.50	6.45	6.16	6.49	
4. WPatt4	7.19	7.31	7.09	7.47	6.79	8.33	7.03	6.50	7.37	
5. Common vs. Rare	8.41	8.32	8.48	8.37	8.55	9.00	8.32	7.77	8.51	
6. Aggressive vs. Harmless	9.68	9.59	9.76	9.62	9.77	9.70	9.68	9.87	9.64	
7. Ugly vs. Beautiful	8.96	9.19	8.77	9.19	8.67	9.50	8.88	8.83	8.99	
8. Stupid vs. Intelligent	7.81	8.00	7.64	8.13	7.36	9.10	7.59	8.00	7.75	
9. Insignificant vs. Unique	9.05	9.05	9.05	9.15	8.87	9.45	8.99	8.29	9.19	
10. Not at all interesting vs. Intriguing	8.91	8.81	9.03	8.88	8.97	9.55	8.81	8.77	8.93	
11. Not all worth protecting vs. Highly valued	9.19	9.18	9.20	9.15	9.25	9.73	9.11	9.21	9.17	
12. Very likely to protect HP vs. Very unlikely to protect HP	1.92	1.92	1.92	2.02	1.62	3.00	1.79	2.16	1.87	
13. Not at all connected to nature vs. Highly Interconnected	4.85	4.78	4.91	4.87	4.87	5.33	4.78	4.65	4.89	

WPatt1=Beaches are important habitats for wildlife; WPatt2=Development on coasts should be limited to ensure protection of wildlife;
 WPatt3=Wildlife protection rules have gone too far; WPatt4=It is more important that beaches provide unrestricted opportunities for human recreation than wildlife protection.

Text highlighted in red denotes statistically significant differences in means

Yellow highly shows differences that approached significance, but were over the level of $<.05$

Table 2. Means Continued

Survey item	Cape Paterson <u>M</u>	Harmers Haven <u>M</u>	Inverloch <u>M</u>
1. WPatt1	2.20	1.67	1.58
2. WPatt2	2.23	2.21	1.50
3. WPatt3	7.18	7.39	7.96
4. WPatt4	7.89	8.64	7.92
5. Common vs. Rare	8.59	8.40	8.19
6. Aggressive vs. Harmless	9.82	9.80	9.32
7. Ugly vs. Beautiful	8.64	9.03	9.29
8. Stupid vs. Intelligent	8.18	7.15	8.25
9. Insignificant vs. Unique	8.92	8.94	9.31
10. Not at all interesting vs. Intriguing	8.61	8.94	9.16
11. Not all worth protecting vs. Highly valued	9.30	8.97	9.38
12. Very likely to protect HP vs. Very unlikely to protect HP	2.23	1.69	1.84
13. Not at all connected to nature vs. Highly Interconnected	4.89	4.87	4.77

WPatt1=Beaches are important habitats for wildlife; WPatt2=Development on coasts should be limited to ensure protection of wildlife;
 WPatt3=Wildlife protection rules have gone too far; WPatt4=It is more important that beaches provide unrestricted opportunities for human
 recreation than wildlife protection.

Table 3. Pearson product moment correlations between continuous survey items

Item	1	2	3	4	5	6	7	8	9	10	11	12
1. WPatt1												
2. WPatt2	0.64* **											
3. WPatt3	0.02	-0.18										
4. WPatt4	-0.04	-0.18	0.51* **									
5. Common vs. Rare	0.00	0.05	-0.01	0.15								
6. Aggressive vs. Harmless	-0.05	0.01	0.16	0.09	0.16							
7. Ugly vs. Beautiful	-0.15	-0.09	0.14	0.14	0.20	-0.02						
8. Stupid vs. Intelligent	0.06	-0.01	-0.03	0.27* *	0.14	-0.09	0.30* *					
9. Insignificant vs. Unique	-0.33* *	-0.28* *	0.22	0.40* **	0.33* **	-0.02	0.48* **	0.38* *				
10. Not at all interesting vs. Intriguing	-0.20	-0.15	0.04	0.20	0.05	0.12	0.52* **	0.28* *	0.58* **			
11. Not all worth protecting vs. Highly valued	-0.27* *	-0.29* *	0.18	0.34* *	0.20	0.00	0.55* **	0.40* *	0.73* **	0.55* **		
12. Very likely to protect HP vs. Very Unlikely to protect Hp.	0.36* **	0.39* **	-0.10	-0.10	-0.10	-0.15	-0.27* *	-0.03	-0.21	-0.20	-0.10	
13. Not at all connected to nature vs. Highly Interconnected	-0.17	-0.29* *	0.09	0.30* *	0.28* *	-0.04	0.19	0.42* **	0.31* *	0.24* *	0.24* *	-0.27* *

* $p < .05$; ** $p < .01$; *** $p < .001$; WPatt1='Beaches are important habitats for wildlife'; WPatt2='Development on coasts should be limited to ensure protection of wildlife'; WPatt3='Wildlife protection rules have gone too far'; WPatt4='It is more important that beaches provide unrestricted opportunities for human recreation than wildlife protection'.

Appendix D

Thematic coding of the open-ended question: *How would you best describe what it was like for you to look through the scope/binos at the hooded plovers? (ie describe your experience of seeing the birds).*

Plain description of what seen

- 14. A bird nesting on beach
- 47. Simple bird, very quick, dark head, clear chest
- 75. Walking & Running

Raising questions

- 45. ... I'm not sure what is unique about this bird. Why is it called 'hooded'?

Generally positive experience

- 2. Good actually...
- 8. It looks alright...
- 16. ...very nice.
- 19. Interesting
- 22. ...nice, heart warming. It was good
- 27. Really interesting...
- 28. Rewarding
- 32. Impressed...
- 36. Interesting...
- 38. Beautiful experience...
- 40. Felt like short involvement in a David Attenborough program
- 45. Good to see the birds...
- 55. Very interesting experience clearly.
- 58. Interesting...
- 59. Good.
- 62. Very Interesting
- 63. Interesting & rewarding...
- 64. Enjoyable...
- 73. Very Nice
- 74. A great experience...
- 81. Special, have never seen one before
- 82. Interesting
- 85. It was very nice.
- 97. A bit excited...
- 101. It was a real treat...

The clarity of the view and a new perception (ie seeing it differently)

- 2. ...through a scope it's better. It makes a difference - can see everything

4. ...it's good to see them so clearly
5. A different idea - different view...
8. ...looks bigger through the scope
12. ...very clear scope
13. Very clear, really good to see colour in the bird
15. You get a great view of their colours, the red around its eyes etc
16. Good clear sight...
25. It was good to get a better close up than with binoculars...
27. ... better than looking through binoculars
34. The detail was much greater – clear
43. Fantastic tool to see birds so close by with
50. Nice to see them up close, smaller than expected.
58. ...had a good view.
61. Delightful to see so clearly.
63. ... Larger than I expected & seeing baby nearby a bonus.
74. ...loved to see them up close and be part of the survey
90. Lovely to be able to see up close.
92. It was lovely to see the birds and what they look like up close –
95. It is incredible to see them so clearly going about their business...
98. Really great to have that close up view.
100. Great experience to see up close

Intimacy & emotionality of the viewing experience

39. ...Very intimate
41. ... Seeing the plover so much closer and detailed through the telescope was very moving...
42. Like you've got it in your hand. Up close like you're invading its privacy...
52. More intense

Appreciation that the viewing experience does not disturb the bird

25. ... good that it didn't disturb the bird. It's very effective camouflage was apparent, as it took a bit to find, even through the telescope's focus area
91. Revealing to get personal insight into an elusive bird without human interaction being overbearing/intrusive...

the wow factor

3. Bloody hell...
6. Amazing...
9. Excellent
10. Amazing
11. Exciting
12. Very cool...
17. It was a surprise...
20. So exciting, amazing, interesting, unexpected
29. Wow - the eyes were red- good to see that...

- 21. I'll be blowed! Bugger me! Saw things I wouldn't have seen otherwise. Fascinated to see it sitting there. Pleasantly surprised.... Delighted seeing it.
- 30. Very unexpected to be able to do this
- 37. Exciting - very exciting actually, really something... It was amazing watching the limping plover, deciding whether or not to catch it.
- 39. ...amazing
- 42. ...It's amazing!!
- 44. When I saw the two chicks I got excited, happy...
- 67. Amazing...
- 79. Exciting
- 84. Exciting
- 88. Unbelievable
- 89. Fantastic
- 96. ... thrilling experience.

Intriguing

- 54. It was very intriguing to see the birds close up.
- 87. Intriguing

Appreciation of the environment & habitat & need for preservation

- 3. ...a greater appreciation of the environment and the bird for sure. A feel good thing - conservation thing.
- 7. I was happy to see them in their natural environment
- 46. Exciting to see it in the wild in its natural habitat...
- 68. ...worth saving.
- 92. ... interesting to see their habitat....

Cuteness & positive aesthetic observations

- 4. They're very cute birds...
- 17. ...it's cute
- 21. ...Cute...
- 22. So cute...
- 23. I thought they looked cute
- 29. ...very cute.
- 31. Beautiful bird
- 32. ...distinct little bird, marking very wonderful - eyes, double band
- 33. Beautiful little birds...
- 35. Challenging to find but wonderful to see, colourful crest, sense of fragility
- 38. ...exquisite looking bird
- 41. It was lovely to see the detail of its colouring...
- 44.they're really cute...
- 46. ... It's so cute.
- 50. They were very cute...
- 55. The eye quite spectacular, very attractive bird, gentle disposition
- 56. ... fine features, plumage, quite special.
- 57. They looked observant & happy.

- 65. ... beautiful to see
- 71. A very pretty little bird, beautiful
- 86. Perfect, most beautiful bird among birds
- 94. Captivated by the looks of the bird especially by the hood and the red circle around the eyes
- 97. ...Pretty little bird.
- 101. ... it made me more aware of their beauty and their presence on the beach.

Family & chick observations

- 24. Amazing to see the whole family together clearly
- 37. ...Seeing a juvenile next to an adult - watching their involvement...
- 72. They looked very peaceful — a happy family unit.
- 76. The baby plover was very active and moving around a lot and it was great seeing the wary parents sitting & watching
- 78. Success & happy (*referring to juvenile with parents & breeding success*).
- 80. First view of chick was interesting and seeing how well hidden it was
- 92. ...Gorgeous to see the little baby chicks.
- 93. Great to see the little chicks and the parents in detail in their surrounds on the beach. (*could also be coded in the 'natural habitat' theme*)
- 95. ...The chick looks terribly vulnerable — so tiny and fluffy and seemingly by itself.

Educative factor

- 4. it's good... to have someone explain what you're looking at
- 49. It was lovely to see one to know what it looks like
- 56. Educational, knowledge. Detail...
- 60. Very Interesting, haven't watched birds before
- 64. ... interesting to find out more about the birds.
- 65. Very Enlightening...
- 91. ...insightful
- 99. Interesting, educational.

Appreciation and luck in being able to see it

- 5. ...We take things for granted, lucky to see it up close in its habitat. Thanks for giving me the opportunity
- 6. ...I'm glad they're there and we can see them. I'm glad they've hatched
- 18. Have been watching them for many years and have always loved watching their antics
- 36. ...obviously a privilege to see it on it's nest
- 51. It was a great opportunity to see the birds close up, after years of walking around the enclosures
- 66. I felt very privileged to have such a close up view as it is always very difficult to spot them although we know they are often there.
- 67. Fantastic to get a close up opportunity to view the Hooded Plover
- 69. A great opportunity because they are hard to spot with naked eye (when they're sitting).
- 96. Privileged to get up close and personal and to watch the birds try to maintain a normal life...

Concern & understanding about threats

33. ...poor things trying to raise chicks in the middle of the elements at the mercy of crows, seagulls, foxes and us and our dogs!
41. ... As a sometimes recalcitrant dog owner on the beach, I became quite agitated when a young couple refused to curtail their dog by hand after they were told about the risk of the plovers. Their attitudes and response was 'this is a public beach.'
44. ...but Jesus, they should make their nests on grass!
48. It is nice to see the chick thriving in such an inhospitable place with lots of beach goers

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