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SPN
Spheniscid Penguin Newsletter

From the Editor ...

Since our first issue in Spring 1988, our mailing list has nearly doubled, and is still growing. We are pleased to be able to serve this group as a medium of information exchange. This is a time of increasing institutional cooperation (see, for example, the announcement of a new Humboldt Studbook, on page 3) and growing interchange between those studying spheniscids in the field, and those working with them in zoological institutions.

New Features

In response to our readers, this issue contains two features which will appear regularly (or as needed). The first of these is a column of questions and answers from readers (see p. 2). Questions sent in will be answered by consulting directly with individuals or institutions known to have experience in the matter, by reviewing survey information, and by publishing the question to solicit replies. More complex issues, of course, will be addressed in articles; also, statistical analysis of survey information about topics such as diet supplements, and population size and structure, is going on now and should be completed in time for the Spring issue. But in the question and answer format, readers can no doubt shed light—and provoke new thoughts—on many less involved issues.

So, if you’ve wondered whether others have observed a certain behavior, or how others deal with some situation, put your question on a postcard and send it to us at the address on page 2.

The second feature is a column in which zoological institutions wishing to acquire additional penguins, or send some to another zoo, may announce their needs. (See page 3.)

Relocation and Health

Another aspect of exchanging birds among institutions is the effect of shipping and relocation upon the health of the birds. Recently we corresponded with a European zoo which has sent out over 200 captive-bred spheniscids, and inquired as to whether the relocated birds suffered particular problems. Unfortunately, the reply was that the receiving institutions rarely send back such information. Here in the US, we have some indication that for Humboldts the process of being shipped off to a new home, with different climate, routine, etc., has often resulted in health problems such as aspergillosis. This issue was discussed at the Humboldt SSP meeting in Pittsburgh this past September, and SSP Coordinator Patty McGill-Harelstad is preparing forms which would be filled out by the sending and receiving institution and then sent on to her for compilation and analysis. In this way it might be possible to correlate factors such as time of year shipped, differences in climate and exhibit conditions, and age, with the subsequent reaction of the penguins.

We urge our readers, when receiving new spheniscids, to consider notifying the sending institutions of the birds’ health and survival over the several months after arrival. An analysis of past illnesses and deaths following transference, based upon existing records, might well yield potentially valuable information, should someone wish to undertake this at their own zoo or at several zoos.

Wildlife Review

SPN has been accepted to the list of journals indexed in Wildlife Review, which is published quarterly by the US Fish and Wildlife Service. It reviews several hundred journals, as well as symposia and books, listing wildlife-related articles by subject, author, etc. See page 3 for more information on this very useful index. 

Penguin Workshop Scheduled

A bird workshop focussing on spheniscids and flamingos will be held at the Western Regional Conference of the American Association of Zoological Parks and Aquariums. The conference will be held at the Sacramento (California) Zoo, from March 25 through 27, 1990. Registration for the Conference is $75, and a contribution of $25 is being requested from those attending the workshop. Through these extra fees and other contributions from interested parties, AAZPA hopes to establish a revolving fund for providing speakers at bird workshops. As this newsletter goes to press, no firm schedule of workshop events or speakers is yet available. For more information, contact Patty McGill-Harelstad (Humboldt SSP Coordinator), Curator of Birds, Brookfield Zoo, Chicago, Illinois. Phone (312) 485-0263; FAX (312) 485-3532.
Recent Publications

Compiled by Karen Dale


Questions and Answers from Readers

Q. What methods are being used successfully to increase levels of natural activities in captive spheniscids?

A. Periodically feeding live fish, providing nesting material to be carried and "stolen," and having water splashing into the pool, have all been associated with high activity levels. Live fish are typically hatchery-raised. Nesting material used includes sticks, rocks, grasses and leaves. Splashing water, such as that from the end of a hose, has been observed to cause the birds to swim over and over underwater through the current, and sometimes begin to "porpoise." The effect might be lost if it were provided continually.

Another reader inquires as to the use of brewer's yeast as a nutritional supplement, and what side effects it might have; has anyone had experience with this?

If you have a question, for which the experience or observations of other readers may suggest an answer, please send it in, to the address below.

If you've got an answer to one of our questions, or just a good short suggestion relating to penguin management or study, be sure to send it to us at:

SPN
Washington Park Zoo
4001 SW Canyon Rd.
Portland, Oregon 97221
USA

You—our readers—with your collective hundreds of years experience with spheniscids, have many good questions and lots of answers. Let's get the two together!
New Studbook Established

by Simon Blackwell

I have recently been appointed Regional Studbook Keeper for the Humboldt penguin in Great Britain and Ireland by the National Federation of Zoological Gardens.

Stephen McCusker has covered the problems involved in compiling a studbook, in the first SPN so I will not repeat, just relay some initial observations and thoughts.

I have contacted 34 collections and received 27 replies, so far. This is a good response and I hope it reflects the attitude for future cooperation.

The lack of identification in the collections means there is no way of plotting lineage. Therefore, one crucial factor is to identify individual penguins as soon as possible. Then each bird has to be sexed and this will give us a future working base.

There are many areas to investigate but initially I would like to look at diet variations and supplementations relating to general condition, through egg viability to chick mortality, and blood sampling for vitamin levels, aspergillus screening, etc.

Another aspect I would like to look at is the consequences of hand-rearing. The high mortality of chicks parent-reared was the deciding factor regarding hand-rearing and this has been the policy of virtually every establishment in this country for the past ten years. Although we have no obvious problem with 2nd and 3rd generation breeding, utilizing hand-reared birds, I wonder how these birds would cope if left to rear their own young? I would be interested in other views and experiences regarding hand-reared birds rearing their own chicks.

As penguins are relatively steady birds I think we may have to start looking at supplemental feeding, antibiotic treatment, etc. on the nest. This was mentioned by Woodland Park Zoo in the last SPN. Certainly some research should be carried out also looking at the possible detriment to the adult bird making it triple clutch long term.

These are initial avenues that need to be explored and can be accessed through a studbook.

When the studbook is completed I will be in a position to present statistical information or the complete studbook for those interested.

Simon Blackwell
Assistant Curator
Cotswold Wildlife Park Ltd.
Burford
Oxford OX8 4JW
England

Surplus listings/Wanted listings

Two adult male Blackfooted Penguins (Spheniscus demersus) are available from Stanley Park Zoo, Vancouver, British Columbia, Canada. For more information, please contact Mike Macintosh, Zoo Manager, at (604) 683-1040.

Wildlife Review

Wildlife Review is published quarterly by the US Fish and Wildlife Service. Hundreds of journals, in English and other languages, are reviewed, and relevant articles are indexed by author, subject, geographical area, and species. For current subscription rates, contact: The Government Printing Office, Superintendent of Documents, Washington D.C., 20402 USA.
Recognition of individuals is an important tool in the management of captive groups of animals (Cheney, 1989). Not only is it indispensable when obtaining information about most aspects of the breeding biology—including whether or not inbreeding occurs—but also in cases of illness or aberrant behaviour it is the only way to get the right individuals out for treatment.

Zoos use many different bands for identification purposes (Cheney, 1989). However, all bands have disadvantages. When fixed around the flippers they must be loose enough to allow for swelling during moult. When birds are not in moult the average flipper is half the crosssectional size of the largest recorded mouling bird (Jarvis, 1970: Black-footed Penguin [Spheniscus demersus]). Bands may be lost, even though fixed on both flippers as was suggested by Cheney (1989) as a solution to the problem of losing bands. The loss of one flipper band may go unnoticed, so that loss of the second means all information on the bird can get lost. Also, most bands damage the feathers slightly and some are difficult to read from a distance even with binoculars.

In this paper, I suggest that individual recognition of Humboldt penguins (Spheniscus humboldti) may be possible without bands.

**Spot patterns**

I started my observations on the Humboldt penguin colony (45-60 individuals) at Emmen Zoo, the Netherlands, in 1983. All individuals had once been banded. However, I encountered most of the problems mentioned above, of which loss of bands and difficulties of reading bands from a distance were the most serious. I therefore looked for individual differences to make possible individual recognition. As I reported earlier (Scholten, 1987), I used the spot pattern on the breast. Other authors have realised the possibility of individual recognition in penguins of the genus Spheniscus using spot patterns (Schmidt, 1978; Gailey-Phipps, 1978; Leloup, 1982). Leloup reported that she used drawings; so did I in the beginning. However the disadvantage of drawings is, that often they can only be interpreted by the artist. Photographs offer a much better alternative. I made a series of photographs of each penguin for Emmen Zoo and experience has shown that other persons can use those too for recognition of individuals.

The spot pattern of adults hardly changes over the years (figures 1a and 1b) and is therefore very well suited for long-term record-keeping. Juveniles also have spots on the breast, but the pattern can change during the moult to adult plumage (figures 2a and 2b). It is therefore necessary to photograph each penguin again after moulting to adult plumage.

**Figure 1:** The breast spot pattern of adults usually stays the same over the years. In these photographs the same individual is pictured in 1983 (above, Fig. 1a: Photo: E.J. Boessenkool) and in 1989 (at right, Fig. 1b: photo: C.J. Scholten).
Humboldt Penguins
by C. J. Scholten

This way of recognition enables one—once one knows the spot patterns—to recognize the animals readily from a distance without the help of binoculars as long as they are facing the observer.

Recognition by spot patterns can be used as well in the wild. When studying Humboldt penguins in Peru for three months I used spot patterns to identify individuals. Handling of birds would have been very difficult there, since they were extremely shy. It involved a lot of drawing, but it worked remarkably well.

Bare facial skin

When penguins are not facing the observer, are swimming, or are in a particular phase of moult, recognition by way of the spot pattern on the breast is impossible. In those cases the black/pink pattern on the bare facial area right behind the mandibles and around the eyes is a very obvious pattern to use. According to Boersma (1976) every Galapagos penguin (Spheniscus mendiculus) can be recognized by the marking on this unfeathered area. As with Humboldt penguins, the pattern on the left side of the head may differ from that on the right.

However, a few years after my first drawings of these patterns, I had difficulties in recognizing animals from these drawings. Careful study of photographs showed that the black/pink pattern of the bare facial area changes over the years, sometimes even very markedly (figures 3a and 3b). Therefore a recognition system based on the black/pink pattern of the bare facial skin is not suitable for a long-term study.

Figure 2: The breast spot pattern of an individual in the juvenile phase usually differs in detail from that in the adult phase. Here the same individual is pictured as juvenile (above, Fig. 2a) and adult (at right Fig. 2b). These photos, and all that follow, by C. J. Scholten

SPN November, 1989 page 5
Individual Recognition...

Figure 3: The black/pink pattern on the bare facial area may vary over the years. These photographs show the same individual in 1986 (left, fig. 3a) and 1989 (right, Fig. 3b). Note the darkening of the bare skin between bill and eye.

Eyecolour

The colour of the eyes differs between individuals in Humboldt penguins. Chicks start out with grey eyes. After about 10 months all juveniles have pale eyes (Scholten, 1986). In most individuals, the colour will then gradually change to red, but not for every individual at the same speed. Most males have red eyes by their fourth year and most females by their fifth year (Scholten, 1986). However, not all animals develop red eyes. Dark eyes are sometimes found in very old birds.

Since the colour of the eyes is subject to change, this item can be also be used for short-term recognition only and not for long-term.

Various characteristics

All kinds of variations in the external features may of course facilitate recognition. Aberrations in the black and white colour marking of the feathers may be used for long-term identification. Some individuals for instance have unusual markings, such as a white stripe on the otherwise black forehead.

Other colour aberrations may only be used for short-term identification. The black feather colour for instance of birds that fail to moult, as sometimes happens (Scholten, i.p.), tend to fade with time, so that those birds are brown instead of black. A female in the colony of Emmen Zoo did not moult for two and a half years and finally the black had turned to a pale kind of brown, so much so that there was hardly any difference left between the “black” on the head and the white head stripes (figure 6).

Conclusion

For record-keeping purposes, recognition by long-term characteristics is the best. This is the pattern of the black and white feather colouring. A photo-collection of the birds makes banding unnecessary. Once the photo-collection is established it needs only to be updated once a year. Also, each year photos should be taken of the new juveniles which have joined the colony and the previous year’s juveniles after they have moulted to adult plumage.

When in need of more recognition characteristics for a short-term study, one may use the black-pink pattern...
in the bare facial region, the eyecolour, and other possible variations in colour as explained above.

Unfortunately, chicks do not possess any obvious colour markings. Unless there are other obvious differences between them, such as size, they should be marked in a temporary way until they lose their down and the spots appear.

ACKNOWLEDGEMENTS

I would like to thank the management of Emmen Zoo, The Netherlands, for allowing me to do the study in the Zoo. The Zoo also financed air travel for my field study in Peru. The Dr. J.L. Dobberke Foundation for Comparative Psychology covered the expenses of my stay there.

Thanks to Dr. I. G. McLean for his comments on this paper.

And, without the support of my husband Th. W. van de Gronde this whole research project on penguins would have been impossible.

Figure 4: Directly after moult, the "bare" facial area is still covered with small white feathers. These will wear off fairly soon.

Figure 5: In young juveniles, the "bare" facial area is still covered with feathers. In these photographs the same individual is pictured at 6 months of age (left, Fig. 5a) and at 14 months of age (right, Fig. 5b).
Individual Recognition...

cont’d from page 5

LITERATURE


Scholten, C. J. (i.p.) The timing of moult in relation to age, sex, and breeding status in a group of captive Humboldt Penguins (*Spheniscus humboldti*) at Emmen Zoo, The Netherlands. *Netherlands Journal of Zoology*.

C J. Scholten
Pastoriepad 7
9993 TL Westerwijtwerd
The Netherlands

**Figure 6**: The blackness of the feathers fades with time to brown. This picture shows a female more than 2 years after her last moult.

**SELECTED ABSTRACT**


In this experiment, carried out in the field, clutches of Little Penguin eggs were reduced to 1 or increased to 3 eggs, in order to study survival rates of chicks under these conditions. Theories to explain the specific size of clutches have held that one of two causes determines clutch size: either the optimal number of offspring that the parents can rear, or the amount of energy that the female can assimilate to produce the eggs. Approximately 30 nest sites were involved. Most of the pairs given 3 eggs shifted one or more of the eggs out of the burrow, but those which hatched 3 young raised them with about the same success rate as pairs hatching only two chicks. These results indicate that the limiting factor is females’ egg-laying resources, rather than the pairs’ ability to feed; however, the numbers involved are small and the authors caution that the availability of food during the experiment may not have been typical.

[summary by editor of Emu]
With Humboldt Penguins it seems to be the male who determines the location of the nest-site. Ecstatics are performed nearly always by males and are done a great deal in the immediate surroundings of the nest. When a change of nest-site occurs, the male sometimes starts giving ecstatics at the new nest-site a year or more before actual nesting occurs. It is mostly the male who brings the nesting material to the nest.

The results obtained in the Zoo are confirmed by observations I made in the wild.

The female seems to be the one who is decisive concerning the matter of mate choice. That this seems likely I will try to explain from several case studies made in the Zoo: 1) A case where I could follow the process of becoming a pair very closely, 2) one case where a male had a relationship with two females and, 3) five cases where partner-change occurred.

Observations on what happened in the colony in the Zoo in times of a surplus of males and in times of a surplus of females seems to agree with the role of male and female as mentioned above.


Despite their universal popularity, penguins have until relatively recently, been poorly represented in zoological gardens. This is especially true of the far more specialized Antarctic and sub-antarctic species. However, recent success clearly suggests that if proper facilities and management programs are provided, even the most specialized forms can be maintained and propagated. Facilities can easily be designed to facilitate research programs. Over 1000 penguins of nine species are currently maintained in the Sea World Penguin Encounters. This paper addresses some of the aspects involved; unit design, maintenance and husbandry techniques, biomass required, science and breeding programs, and species acquisition, etc. Since 1983, substantial captive populations of gentoo, chinstrap, macaroni, rockhopper, magellanic and king penguins have been established. All of these species were collected as eggs which were subsequently hatched and hand-reared in San Diego. This acquisition method clearly illustrates that it is possible to obtain penguins without negatively impacting the reproductive potential of wild populations.


The four penguin species comprising the genus Spheniscus: the Humboldt Penguin S. humboldti, Magellanic Penguin S. magellanicus, African Penguin S. demer-
International Conference

WHITEHEAD, M.D., JOHNSTONE, G.W. & BURTON, H.R. Biology Section, Antarctic Division, Channel Highway, Kingston, Tasmania 7150, Australia.


A Method to Obtain Hand-Reared Adelie Penguins for Physiological Experiments. ADELUNG, D. & CULIK, B. Department of Marine Zoology, Institut fur Meereskunde, Dusternbrooker Weg 20, 2300 Kiel, FRG.

Virological Studies on Adelie Penguins (Pygoscelis adeliae). AUSTIN, F.J. MRCNZ Virus Research Unit, University of Otago, Dunedin, New Zealand.

Evolutionary Ecology and Ethology of Penguins; With Special Reference to the Gentoo. BOST, C. & JOUVENTIN, P.


Periodic Return of White-Flippered Penguins (Eudyptula minor albosignata) to Their Breeding Site and Its Influence on the Timing of Laying. CHALLIES, C.N. Forestry Research Center, Forest Research Institute, P.O. Box 31-011, Christchurch, New Zealand.

Wind and Temperature Effects on Metabolism of Chicks and Adults of Adelie Penguins (Pygoscelis adeliae). CHAPPEL, M.A., MORGAN, K.R. & SOUZA, S.I. Dept. of Biology, Univ. of California, Riverside, CA 92521, USA.


Energy Expenditure and Travelling Speeds of Free-Ranging Little Penguins (Eudyptula minor) COSTA, D.P., FADELY, B.S. & Dann, P. Long Marine Laboratory, Inst. of Marine Science, University of California, Santa Cruz, CA 95064 and Penguin Reserve Committee of Management, P.O. Box 403, Cowes, Phillip Island, Australia 3922.


Energy Budgets and Foraging Behaviour of Free-Ranging Pygoscelis and Eudyptes Penguins. CROXALL, J.P. & DAVIS, R.W. British Antarctic Survey, Natural Environmental Research Council, Madingley Road, Cambridge CB3 0ET, UK and Sea World Research Institute, Hubs Marine Research Center, 1700 South Shores Road, San Diego, California 92109, USA.

Fluoride Toxicity in Antarctic Penguins: Problems Associated With a Krill Diet. CULIK, B. & ADELUNG, D. Department of Marine Zoology, Institut fur Meereskunde, Dusternbrooker Weg 20, 2300 Kiel, FRG.

Demography of Little Blue Penguins (Eudyptula minor) at Phillip Island, Victoria, Australia. CULLEN, J.M. & DANN, P. Department of Zoology, Monash University, Clayton 3168, Vic., Australia; and Phillip Island Penguin Reserve, Box 403, Cowes 3922, Vic. Australia.

Life-Time Reproductive output of Little Blue Penguins (Eudyptula minor). DANN, P. & CULLEN, J.M. Penguin Reserve Committee of Management, P.O. Box 403 Cowes, Phillip Island, Victoria, Australia, 3922 and Dept. of Zoology, Monash Univ., Clayton, Victoria, Australia, 3168.


Behavioral Influences on Incubation Success in Captive Adelie Penguins (Pygoscelis adeliae). ELLIS-JOSEPH, S.A. Lincoln Park Zoo, 2200 N. Cannon Dr., Chicago, IL 60614, USA.

New Fossil Penguin Material From New Zealand and the Early History of Penguins. FORDYCE, R.E. and JONES, C.M. Dept.of Geology, Univ. of Otago, P.O. Box 56, Dunedin, New Zealand.

Free-Living Energetics of Little Penguins (Eudyptula minor) During the Annual Cycle. GALES, R.P. Zoology Department, University of Tasmania, Box 252C, GPO, Hobart, Tasmania 7001, Australia.

The Breeding Energetics of Adelie penguins (Pygoscelis adeliae) at Cape Bird, Ross Island. GREEN, B. AND DAVIS, L.S. CSIRO, Division of Wildlife and Ecology, P.O. Box 84, Lyneham, ACT 2602, Australia; and Dept. of Zoology, University of Otago, P.O. Box 56, Dunedin, N.Z.

Water, Sodium and Energy Turnover in Free-Living Penguins: A Review. GREEN, B. & GALES, R. CSIRO, Division of Wildlife and Ecology, P.O. Box 84, Lyneham, ACT 2602, Australia; and Department of Zoology, University of Tasmania, Sandy Bay, 7005, Australia.

Metabolic Adaptation To Fasting. GROSCOLAS, R. Laboratoire de Physiologie Animale et de la Nutrition, Universite de Bourgogne, B.P. 138, 21004, Dijon, France.

The Protracted Breeding Regime of Little Penguins (Eudyptula minor) in Western Australia. KLOMP, N.I., MEATHREL, C.E. & WOOLLER, R.D. Biological Sciences, Murdoch University, Western Australia 6150.

Physiology of Diving in King and Emperor Penguins. KOOYMAN, G.L. & PONGANIS, P.J. Physiological Research Laboratory, Scripps Institution of Oceanography, Univ. of California, San Diego, La Jolla, CA 92039 USA.

Hatch Asynchrony and Brood Reduction in Penguins LAMEY, T.C. Department of Zoology, University of Oklahoma, Norman, Oklahoma 73019, USA.

Snares Crested Penguins: A Preliminary Life History Table. MCLEAN, I.G., JOHNS, P.M. & MISKELLY, C.M. Dept. of Zoology, Univ. of Canterbury, Christchurch, N.Z.

Lower Tertiary Fossil Penguins From Seymour Island, Antarctic Peninsula. MILLENER, P.R. Department of Subfossil Birds, National Museum, P.O. Box 457, Wellington, New Zealand.

Reproductive Success and Weight Changes During Foraging of Adelie Penguins (Pygoscelis adeliae). MILLER,

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Additions to the Directory of Institutions

The Directory of Institutions is based solely on surveys which have been returned and processed. As institutions send in their surveys, they are added to the Directory. A complete new Directory will appear with the Spring issue. In the meantime, please add these institutions.

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International Conference

G.D. & DAVIS, L.S. Dept. of Zoology, Univ. of Otago, P.O. Box 56, Dunedin, New Zealand.


Deaths of Rockhopper Penguins at Campbell Island From Bacterial Infection by Pasteurella multocida. MOORS, P.J.*, TISDALL, D.J.*, & DE LISLE, C.W.**. *Department of Conservation, P.O. Box 10-420, Wellington; **Central Animal Health Lab., MAF, Private Bag, Upper Hutt, N.Z.

Vocalizations of the Yellow-eyed Penguin (Megadyptes antipodes). NORDIN, K.E., Department of Zoology, University of Otago, P.O. Box 56, Dunedin, N.Z.


Blood Glucose Partition and Levels of Glycolytic Enzymes in Erythrocytes and Somatic Tissues of Penguins. ROSA, R., RODRIGUES, E. & BACILA, M. Dept. of Biochemistry, Univ. of Sao Paulo, P.O. Box 20-780, Sao Paulo, Brazil.

Foraging Movement of Penguins, with Emphasis on a Study of Adelie Penguins (Pygoscelis adeliae) in McMurdo Sound. SADLEIR, R.M.F.S. & LAY, K.R. Dept. of Conservation, P.O. Box 10420, Wellington, N.Z., and Ecology Division, DSIR, Goddards Lane, Havelock North, N.Z.

Nest Site Selection in Yellow-Eyed Penguins (Megadyptes antipodes). SEDDON, P.J. Department of Zoology, Univ. of Otago, P.O. Box 56, Dunedin, N.Z.


please turn to page 14

Institutions in last issue

CORRECTIONS: Please note the following errors which appeared in the Directory:
Tierpark Berlin and Zoo Köln are located in West Germany; Zoo Duisburg should be spelled thus.
Information for Societe Zoologique Granby (S. demersus) should be as follows:
347 Bourget, Granby, Quebec, J2G 1E8, Canada. Phone: (514) 372-9113. Contact Person: France Scott, Ass't Veterinarian. Holdings: Total: 5; Males: 2; Females: 1; Unknown: 2.

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Studying Penguins: The First International Conference

continued from page 13

Mutual Calls and Mate Recognition in Adelie Penguins (Pygoscelis adeliae). SPIERS, E.A.H. Department of Zoology, University of Otago, P.O. Box 56, Dunedin, N.Z.


Nest Site Tenacity, Mate Fidelity, and Courtship Behaviour of Adelie, Gentoo, and Chinstrap Penguins. TRIVELPIECE, W.Z. Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, CA 94970, USA.

Effects of a Change in Food Supply on Growth Rates, Fledging Sizes and Reproductive Success in the Yellow-Eyed Penguin (Megadyptes antipodes). VAN HEEZIK, Y.M. Department of Zoology, University of Otago, P.O. Box 56, Dunedin, New Zealand.

An Experimental Analysis of Agonistic Behaviour in Little Blue Penguins (Eudyptula minor). WAAS, J.R. Department of Zoology, University of Canterbury, Christchurch 1, New Zealand.

POSTERS:

The Pliocene Penguin - Tereingaornis moisleyi, Distribution and Predation by Other Vertebrates. MCKEE, J.W.A., P.O. Box 5085, Palmerston North, New Zealand.

Why Do Erect-Crested Penguins Kick Out Their First Egg When the Second Egg is Laid? WAAS, J.R. & MISKELLY, C.M. Department of Zoology, University of Canterbury, Christchurch 1, New Zealand.

Crested Penguins of the Western Chain, Snares Islands: Research Proposal. MISKELLY, C.M. & WAAS, J.R. Dept.of Zoology, Univ. of Canterbury, Christchurch 1, New Zealand.

More about Banding:

Notes on individual identification used at Cotswold

With some small penguin groups in captivity the keeper has his own names for them, etc., and identifies birds by habit. But this is never a secure method, especially if the keeper moves on. All informal data is easily changed and therefore should not be used as an official record.

At the Park, where our current holding includes 9.9 Spheniscus humboldti and 3.2 Eudyptes chrysocephalus, we have for the past 10 years utilized wing banding. We use stainless steel bands that fold, by hand, at the narrowest part of the wing nearest to the body. The band, like an elongated ring, is 13 mm (0.512 inch) wide and 1 mm (0.039 inch) thick with an internal measurement of 35 mm (1.378 inch). The bands are numbered and placed on the right wing for males and on the left for females. It is possible that in future the bands will be anodised to facilitate a colour code discernible from a distance.

We have never had any problems with using this method. I have heard of the band being rubbed against a rock surface and creating a sharp edge to the band, but this must take some time, so should be observed, and the band can be changed. Another problem, that has affected us slightly, is that the band expands during premoult as the bird increases weight. After the moult the band can be loose and possibly fall off.

We have not tried plastic bands and have always thought leg rings to be highly impractical and possibly detrimental, long term, on such a short leg. All methods are subject to some disadvantage but are ideal for immediate identification. A more exact secondary solution is to identify all adult spheniscids also with breast or inner wing pattern records, either photograph or drawing. This would back up/confirm any ‘in house’ identity system.

Whatever system is used I feel it has to be one that ensures without doubt the permanent identity of the bird, especially for lineage and demographic analysis via a studbook.

SOURCE OF MATERIALS MENTIONED IN TEXT:

Aluminum wing bands are available from Lambourne’s Colman House, Station Rd., Knowle, West Midlands B93 0HI England.

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