



OUR CONSERVATION STORY

Kranji Marshes

by Nature Society Singapore

Pre-modernisation

Sungei Kranji was estuarine before a dam was built in 1972, converting this river into a freshwater reservoir. Over the years, this reservoir became a freshwater swamp.



Sungei Kranji in the 1971 map of Singapore, without a dam (Source: <https://libmaps.nus.edu.sg/>)



Sungei Kranji in the 1974 map of Singapore, after the dam was built (Source: <https://libmaps.nus.edu.sg/>)



Sungei Kranji in the 1974 map of Singapore, after the dam was built (Source: <https://libmaps.nus.edu.sg/>)

On 14 January 1986, NRB responded that the plan was not in line with the intention of the Public Utilities Board (PUB) and thus rejecting the proposal.



YOUR REFERENCE:

OUR REFERENCE: NRB 07

14 Jan 86

Mr Clive Briffet
M.N.S. Member
87B, Linden Drive
Singapore 1128

Dear Mr Briffet

MARSHES AT KRANJI

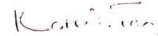
Further to our correspondence earlier this year on the above I am now able to inform you of the Board's position. We have had to pursue the matter with the Public Utilities Board, Telecoms and Ministry of National Development, which accounts for the long delay.

2 We are not able to secure any provision at all for a nature reserve in that area. The major objection arises from the Public Utilities Board. They currently are removing elephant grass and water hyacinth from the region you are interested in since they do not want to see these plants in the reservoir. The existence of any marshy areas at the reservoir conflicts with their aim of having a neat reservoir and they have informed us that they intend to reduce them as much as possible.

3 Since the site in question is under the management and jurisdiction of PUB we are not able to interfere with their current policies. Thus I am afraid the Board cannot take your proposal any further.

4 On behalf of the Board I would like to thank you for your interest in Singapore's wildlife and hope that you will not hesitate to contact us again on any future matters.

Yours sincerely



DR TAN WEE KIAT
SECRETARY
NATURE RESERVE BOARD
BOTANIC GARDENS

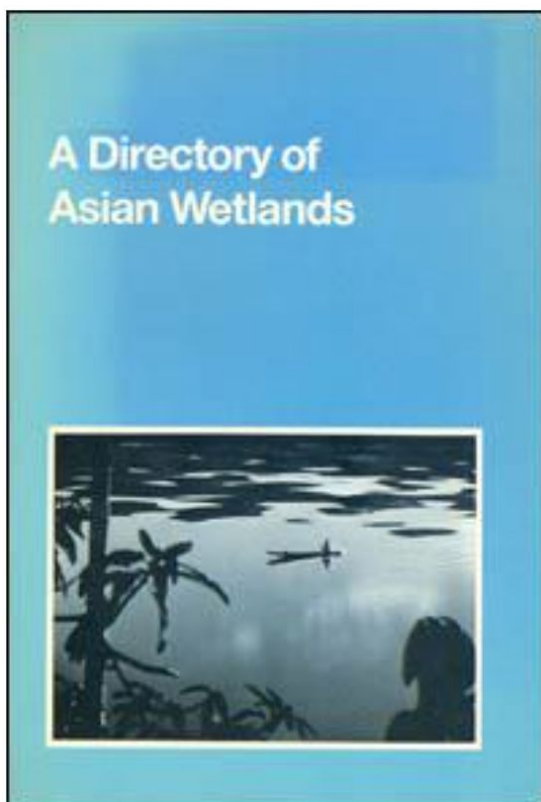
C/O PARKS AND RECREATION DEPARTMENT, BOTANIC GARDEN, CLUNY ROAD, SINGAPORE 1025 TEL: 4741165

A letter to Dr. Clive Briffett, from Nature Reserve Board (Source: Nature Society Singapore)

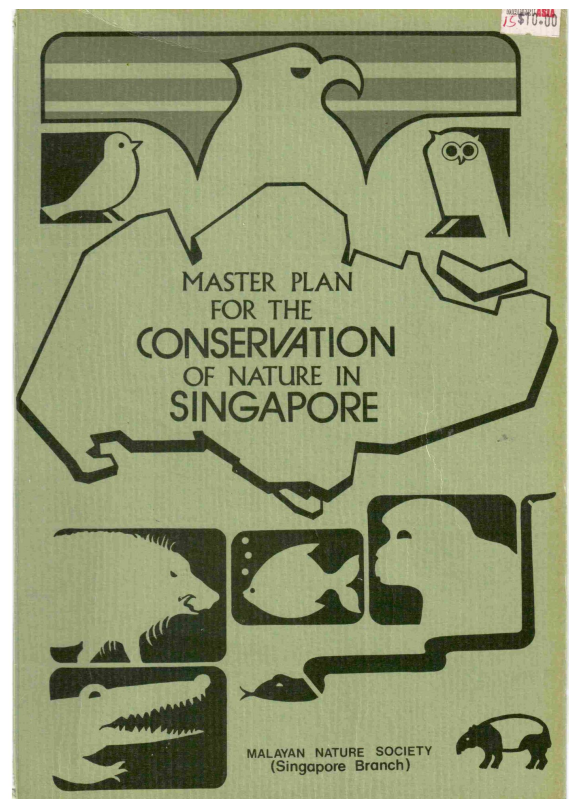
Kranji Marshes in Other Publications

In 1989, the Kranji marshes, together with five other Singapore wetlands, were included in the IUCN's A Directory of Asian Wetlands, published by IUCN. The Directory emphasizes that the freshwater marsh is "a fairly rare type of habitat in Singapore and Peninsular Malaysia". The only other extensive example of this habitat in Singapore and also included in the Directory is the Poyan Marshes in the military zone of the Western Catchment Area, which is little known in terms of biodiversity.

In 1990, in the Master Plan for the Conservation of Nature in Singapore published by MNSSB, Kranji Marshes was identified as a five-star habitat that was recommended to be conserved as a Nature Reserve. In the Master Plan, the description of Kranji Marshes, its land tenure and use, flora and fauna recorded, conservation measures taken, existing and potential disturbances, economic and social value, research potential and scientific value, and suggested future designation were listed.



A Directory of Asian Wetlands by Derek A. Scott, published in 1989 (Source: IUCN)



Master Plan for the Conservation of Nature in Singapore, published in 1990 (Source: Nature Society Singapore)



The Straits Times, 24 May 1990 (Source: NewspaperSG)

Building of Transmission Station by Singapore Broadcasting Corporation

Members of Bird Group continued to bird-watch at Kranji Marshes only to find out that construction for the building of the transmission station began. On 7 September 1990, a letter was written, addressing the Singapore Broadcasting Corporation (SBC) to highlight the presence of the heronry and its value.

MALAYAN NATURE SOCIETY

(Singapore Branch)
c/o Department of Botany,
National University of Singapore,
Lower Kent Ridge Road,
Singapore 0511.

Mrs. Wong-Lee Siok Tin
General Manager
Singapore Broadcasting Corporation
Caldecott Hill, Andrew Road
Singapore 1129

Dear Mrs. Wong-Lee Siok Tin,

Ref: Heronry of the Grey Heron at Kranji Reservoir Endangered by SBC Development Project.

I am writing as Co-ordinator of the Bird Group Conservation Committee of the Malayan Nature Society, Singapore Branch.

Recently, our Society came across land reclamation going on at the Kranji Marsh situated on the western side of the Kranji Reservoir near the British Broadcasting Station. (Please see the map attached). The reclamation is carried out by Housing Development Board. We are informed that the reclaimed area is meant for an SBC station. As such, we presume you would be concerned about this matter.

The reclamation, if it were to proceed any further towards the marshes, would destroy an important and valuable part of our natural heritage — the only known nesting site of the Grey Heron in Singapore as well as a beautiful stretch of freshwater marshes. There are about 25 nests of the Grey Heron as well as several of the Purple Heron, which makes this a significant and viable colony. This also stands as the only known nesting colony of the Grey Heron in the Malay Peninsula south of Selangor, which makes it rare indeed. The freshwater marshland is also something fairly rare in Singapore and the Malay Peninsula. It teems with other species of birdlife as well as freshwater life-forms. The Grey and Purple Heron have become distinctive features of the Kranji Reservoir area. Large and conspicuous birds, they are easily seen standing on the banks, bunds and aqua-

culture platforms on the reservoir. They impart colour and life to the country scenes and are of great interests to nature-loving tourists as well as local people. It would be sad indeed to see the population of these birds decimated by the destruction of the heronry.

Events have taken us by surprise and we were unable to bring this matter up at a more opportune time. We are appealing to SBC to consider preserving the heronry and marshland around it. At the moment, we are working on a conservation proposal for the site and it will be ready soon. As the tractor is now moving very close to the heronry, it would be very much appreciated if SBC could temporarily halt pushing reclamation towards the heronry and the marshland to allow time for a proper appraisal of the matter. The Society has a happy association with SBC throughout the past years. The Society has been providing information and field-guides to help SBC personnel involved with producing nature documentaries, such as the recent series "Nature in Singapore". The emphasis of that fine and popular series is on nature conservation in Singapore, and the Grey Heron and its heronry at Kranji Reservoir were featured in one of them as a part of our natural heritage. It would indeed be most ironical if SBC were to be the inadvertent cause for the downfall of the heronry.

In order to enable you to have a better picture of the situation, we would like to invite you or any of your representative to the site. Please let me know if you are amenable. I am contactable at 7726098 (office) or 4571196 (home).

Thank you.

Yours sincerely,


Br. Ho Hua Chew
Co-ordinator
Bird Group Conservation Committee

Letter to SBC to highlight the importance of the heronry (Source: Nature Society Singapore)

On 18 September 1990, MNSSB received a letter from SBC stating that that an alternative site for the transmission station was lacking and that it would be too costly.



18 September 1990

Dr Ho Hua Chew
Co-ordinator
Bird Group Conservation Committee
Malayan Nature Society
(Singapore Branch)
c/o Department of Botany
National University of Singapore
Lower Kent Ridge Road
Singapore 0511

Dear Dr Ho

Thank you for your letter which we received on 10 September 1990.

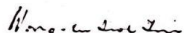
Senior SBC staff have been to the site and have seen the nesting site. Meetings on the matter have been held, co-ordinated by the Urban Redevelopment Authority (URA). Given the very high additional costs, the delay which will be caused vis-à-vis the project in hand and the inavailability of alternative replacement land which has to be provided if the nesting site is to remain essentially intact, it has been decided by the Ministry in charge that the planned development of the site will be proceeded with.

The relevant public bodies involved are appreciative of your Committee's concern. In land-scarce Singapore, however, there is always the need to balance various interests.

In view of the decision to proceed with the planned development, we understand that the Parks and Recreation Department is looking into the possibility of relocating the herons to other suitable nesting sites in Singapore.

You may, therefore, wish to contact the Parks and Recreation Department on this subject.

Yours sincerely


Mrs Wong-Lee Siok Tin
General Manager

Separately on 13 September 1990 and 17 September 1990, MNSSB also wrote to then-Minister of National Development, Mr S. Dhanabalan and Parks and Recreation Department (PRD) to raise concerns on the construction of SBC transmission station.

MALAYAN NATURE SOCIETY
(Singapore Branch)

c/o Department of Botany,
National University of Singapore,
Lower Kent Ridge Road,
Singapore 0511.

Tel: 7756066 ext. 2135

Date:

13 September 1990

Mr S Dhanabalan
Minister
Ministry of National Development
5 Maxwell Road, #21-00 & 22-00
National Development Building
Singapore 0106

Dear Mr Dhanabalan,

Kranji Reservoir Heronry

The above site is presently threatened by a proposed development of an SBC transmitting station. Our members' discussions with the HDB engineers on site revealed that it is proposed to remove all the trees in which over 40 pairs of grey herons and 30 pairs of purple heron nest and the surrounding marshes.

If such proposals are carried out the continued presence of these magnificent birds in the Kranji and Sungei Buloh areas will be severely affected. There are no known alternative locations in the area suited for or used by the herons for nesting and breeding purposes. Indeed this grey heronry is the only known breeding site for this species south of the state of Selangor in Malaysia. In view of the unique value of the habitat for Singapore we appeal to you for assistance in ensuring its future preservation.

We believe it would be possible to meet the needs of the SBC development and at the same time retain the heronry and surrounding marsh. The BBC transmitting station nearby has located its buildings close to the access road and includes a pylon structure on a "dogleg" shape plan layout. If the SBC proposals are similar then there is an opportunity to retain this valuable site. The environmental and ecological benefits of doing this are obvious but in addition the security installed for the transmitting station would also provide a long term protection for the birds.

In view of the many nature programmes produced by SBC which have featured this area including the heronry (the latest being only two months ago) we find the present situation difficult to comprehend.

It is the unanimous view of our main committee and the bird group that the loss of this site will strike a major blow to the efforts made by government in conserving nature in Singapore and particularly to the future availability of wild birds using the new Sungei Buloh nature reserve.

We will be pleased to assist in any way possible in giving advice to the developers on birdlife requirements in this area.

We look forward to hearing from you in the near future.

Yours sincerely,

P N Avadhani
Chairman, MNS

MALAYAN NATURE SOCIETY
(Singapore Branch)

c/o Department of Botany,
National University of Singapore,
Lower Kent Ridge Road,
Singapore 0511.

Tel: 7756066 ext. 2135

Date:

17 September 1990

Mr Chia Seng Jiang
Parks and Recreation Department
5th Storey
National Development Building
7 Maxwell Road
Singapore 0106

Dear Sir,

GREY HERON NESTING SITES AT KRANJI

Thank you for your letter dated 15 September 1990. I have obtained expert advice on this matter from the Bird Group and their comments are as follows:-

The relocation of a wildlife sanctuary such as this heronry is by no means easy. The birds select sites for themselves based on many factors which in this case include age, height, structure and extent of trees, adequacy of protection and freedom from disturbance, location of suitable feeding areas in close proximity and general facilities for colonial nesting.

Such heronries take years to become established and the removal of an existing one cannot be immediately substantiated by a new one. As this is the only grey heronry in Singapore and there are no known sites south of Selangor in the Malay Peninsula we can only conclude that conditions for suitability are delicately balanced.

We have inspected the site and are of the opinion that the retention of the heronry and surrounding marsh is not only a possible option but would be cheaper and more ecologically and environmentally acceptable. The additional problem at the moment is that the birds are still apparently nesting and removal now would have a disastrous effect on this year's breeding success.

We hope this is helpful and we will be pleased to offer further advice if required.

Yours sincerely,

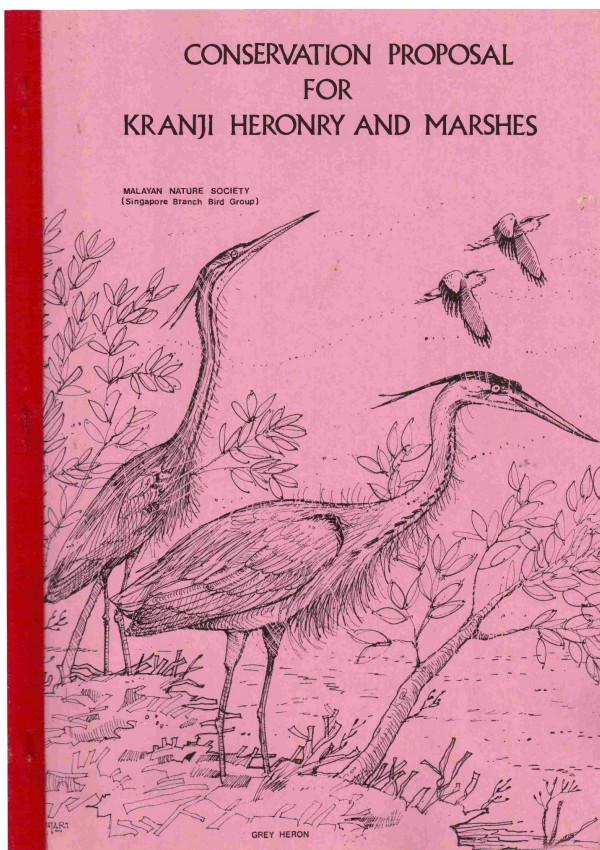
Prof P N Avadhani

The Conservation Proposal

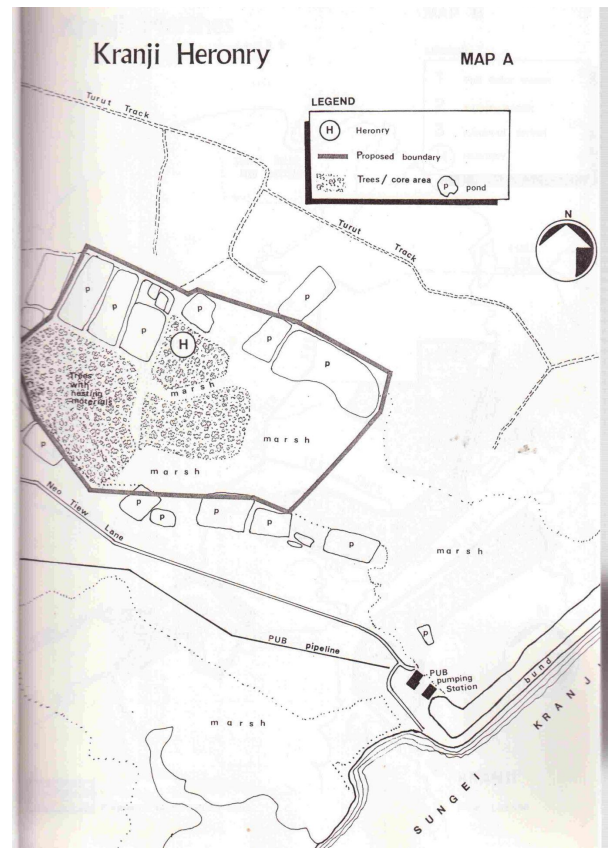
The conservation proposal was published in September 1990 by Dr Ho Hua Chew, in consultation with Prof P.N. Avadhani (MNSSB Chairman), Mr Clive Briffett (Bird Group Chairman), Mr Richard Hale, Mr Lim Kim Keang (Bird Group Secretary), Mr Lim Kim Seng, Dr Rexon Ngim, Mr Jonathan Smith, Mr R. Subhraj, Mr Sutari bin Supari, and Prof Wee Yeow Chin. It called for the establishment of a new nature reserve for the 215 hectares of marshland around Kranji reservoir. This is an updated proposal in relation to the 1985 Outline Proposal by Dr Clive Briffett.

At the point of publication, the heronry located in Kranji is the only known nesting site for the Grey Heron in Singapore, with the closest in Malay Peninsula being Kuala Selangor. It was also estimated that the heronry in Kranji had 40+ nesting sites during peak period while that in Kuala Selangor only 35 sites. Loss of this habitat can cause a drastic decline to the population of Grey Herons.

Apart from calling for the conservation of the heronry, it also called for the conservation of the buffer zone that is made up of the nearby ponds. This buffer zone is essential to provide nesting materials and roosting grounds for the juveniles.



Conservation Proposal published in 1987, Dr Ho Hua Chew, in consultation with Prof P.N. Avadhani, Mr Clive Briffett, Mr Richard Hale, Mr Lim Kim Keang, Mr Lim Kim Seng, Dr Rexon Ngim, Mr Jonathan Smith, Mr R. Subhraj, Mr Sutari bin Supari, and Prof Wee Yeow Chin. (Source: Nature Society Singapore)



Map of the proposed sites to be conserved and location of the heronry (Source: Nature Society Singapore)

Apart from the Grey Herons, other sightings included the Purple Herons nesting in the same site. A total of 118 species, both resident and migrant birds, were also recorded in Kranji Marshes. This is 37% of total number recorded then. Kranji Marshes is also one of the two places in Singapore where Purple Swamphen, locally rare marshland species, is found. Many species of freshwater species are also seen in area.

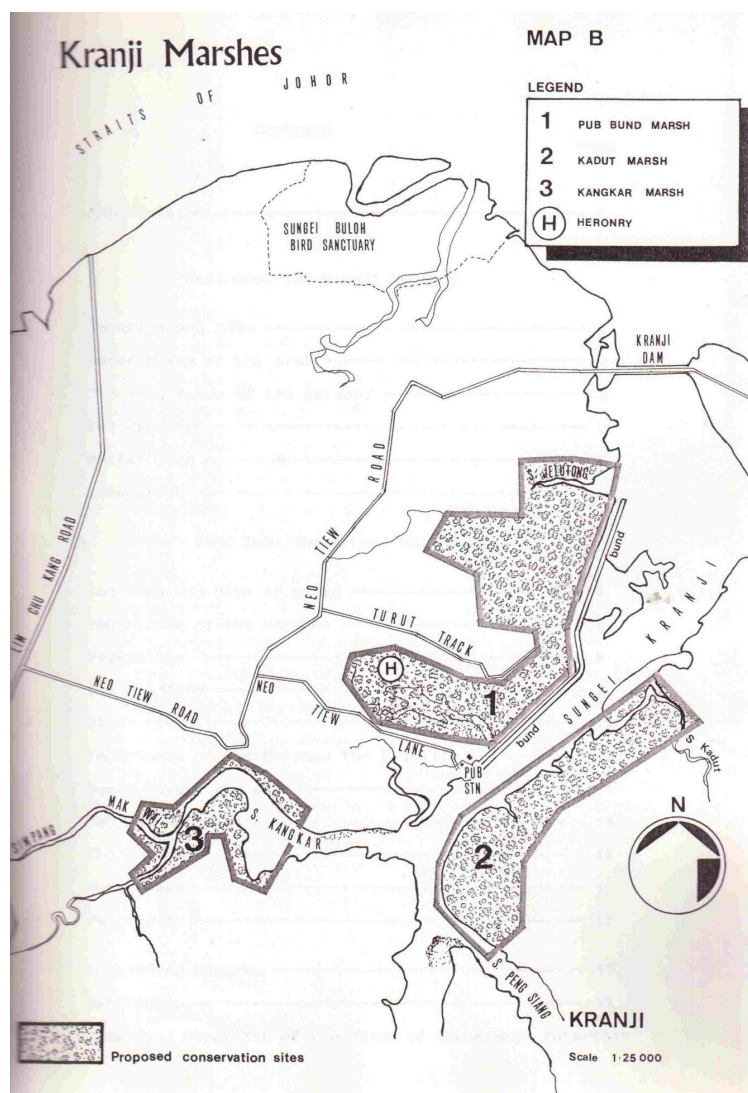
The proposal called for the conservation of three sites:

- 1) PUB bund marsh: 120 hectares
- 2) Kadut marsh: 60 hectares
- 3) Kangkar marsh: 30 hectares



Sketch of the Purple Swamphen by Sutari bin Supari (Source: Nature Society Singapore)

It was also proposed that apart from its ecological values, these sites can also serve as educational and scientific resources, recreational resource and ecotourism since it is situated near the Sungei Buloh Wetlands.



Map of the proposed sites to be conserved and location of the heronry (Source: Nature Society Singapore)

Submission of Conservation Proposal

On 30 September 1990, the conservation proposal was submitted to the then-Minister for National Development, Mr S. Dhanabalan and other agencies.

MALAYAN NATURE SOCIETY

(Singapore Branch)

30 SEPTEMBER 1990 National University of Singapore,
c/o Department of Botany,
Lower Kent Ridge Road,
Singapore 0511.

Mr. S. Dhanabalan
Minister
Ministry of National Development
5 Maxwell Road, # 21-00 & 22-00
National Development Building
Singapore 0106

Tel:

Date:

Dear Mr. Dhanabalan,

Conservation Proposal for Kranji Marshes

Enclosed is a copy of our conservation proposal for the Kranji Heronry and Marshes, which was formulated after an in-depth study and assessment of the status and importance of the marshes around Kranji Reservoir in terms of the wildlife they harbour and the recreational and other human values that they can serve. We understand that decision has already been made on the Grey Heronry, which has to give way to a development project. We regret that this important feature of the birdlife has to go. However, much still remains of the wildlife that is extremely worth preserving, and we appeal to you to give your attention to Part Two of our proposal, which recommends the conservation of several marshland areas for their wildlife and human uses.


It may be of interest to you that the editorial committee of the APA Insight Guides, (famous internationally as " the Roll Royce" of travel guides), considers the Kranji Marshes, together with Sungei Buloh, Pulau Ubin, Bukit Timah, and the Botanic Gardens, attractive and valuable enough for nature tourism to have included them in their forthcoming Insight Guide to Wildlife in South-East Asia. (A copy of the relevant chapter is enclosed). The APA Guides has a worldwide distribution and the areas covered will become famous among nature tourists internationally. The tourism value of such places are great. It is estimated that there are 8 million birdwatchers in the United States alone, without including those from Europe and Japan, an evergrowing portion of whom are travelling internationally to satisfy their quests for birds. Given the publicity in the APA Guide, the Kranji Marshes, together with the other sites featured, will have a fair share of such visitors, all the more so because of easy accessibility as well as availability of many interesting birds of the Oriental region.

Over the past decades, with our people becoming affluent and seeking quality in life, birdwatching, nature photography and nature appreciation in general have become increasingly popular, judging by the attendances in our field trips and outings. School children too are keen to exercise their curiosity and sharpen their powers of observation in a wildlife habitat, as is shown by the overwhelming response to the recent Nature Trek event jointly organised by MNS and SDC at Sentosa (5 September 1990), where over 1000 students from the primary to the A-level sweat it out with great enthusiasm over woods, hills, and vales in quest of wildlife. It is true that such activities can be pursued in our neighbouring countries, but there is nothing like doing such things in own home homeland, where there is easy access and when time is of the essence, as on short outings on Sunday

mornings. The familiarity and intimacy with the wild animals, trees, flowers and beautiful sceneries of our natural or semi-natural landscapes engendered by such activities can nurture a patriotic love of our land that would be hard to come by if the land is always seen as greener on the other side.

Thank you for your consideration. We look forward to hearing from you.

Yours sincerely,


Dr. Ho Hua Chew
Co-ordinator
Bird Group Conservation Committee

CC: URA
HDB
PRD
PUB
Telecoms
STPB
SBC
Minister, MCD
Minister, ENV
1st DM

Letter enclosed with the conservation proposal to MND, (Source: Nature Society Singapore)

Destruction of Heronry in October 1990

As the construction of SBC transmission station continued, the clearance of heronry started.



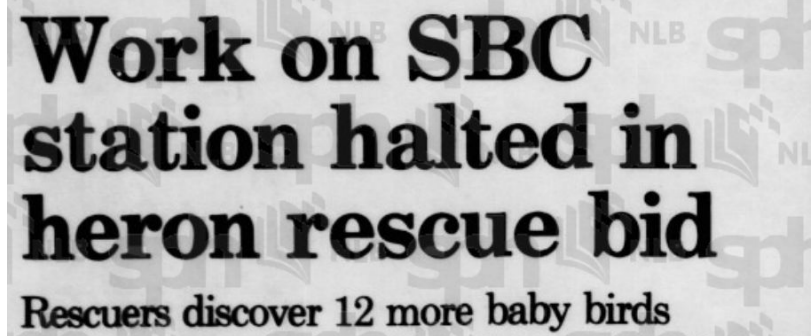
The Straits Times, 7 October 1990
(Source: NewspaperSG)



Operation Heron-rescue begins

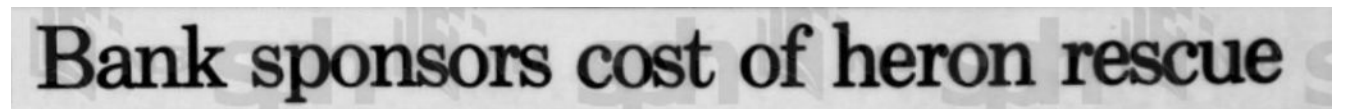
But marshy conditions and limited equipment hamper bid to save them

The Straits Times, 9 October 1990 (Source: NewspaperSG)

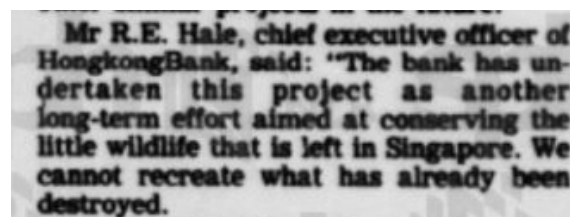


The Straits Times, 10 October 1990 (Source: NewspaperSG)

Rescue of the heron juveniles also started during the site clearance. Mr Richard Hale, the then-Chief Executive Officer of Hongkong Bank, who was also an active member of MNSSB, sponsored the cost of rescue work.



Bank sponsors cost of heron rescue



The Straits Times, 13 October 1990 (Source: NewspaperSG)

Patron lends his support for Kranji Marshes

By the first half of October 1990, one-third of the heronry had been destroyed. On 8 October 1990, Professor Tommy Koh, patron of MNSSB, wrote a letter to SBC, highlighting that “the Singapore delegation has always said that we have found no inherent contradiction between development and environment”, and thus appealed to SBC to reconsider where the station could be built. Incidentally, on 12 October 1990, Dr Ho Hua Chew also wrote a letter to appeal for Professor Tommy Koh’s support in this matter.

8 October 1990

Dr Cheong Choong Kong
Chairman
Singapore Broadcasting Corporation
Andrew Road
Caldecott Hill
Singapore 1129

Dear Choong Kong

I was distressed to read in yesterday's issue of the Sunday Times that we are in the process of destroying the only breeding ground in Singapore for grey herons in order to allow the SBC to build a new transmission station. I understand from the article that the only other breeding ground for grey herons in West Malaysia is in Selangor.

First, I want you to know that I fully understand SBC's need to relocate its present transmission station in Jurong West. I also do not question your choice of the site at Kranji reservoir as the most suitable for quality radio transmissions.

Second, the real issue is whether it is possible to build the new transmission station in Kranji in a way which does not destroy the existing eco-system. In the Preparatory Committee for the 1992 UN Conference on Environment and Development, of which I am the Chairman, the Singapore delegation has always said that we have found no inherent contradiction between development and environment. Given that this has always been our philosophy, I appeal to you to reconsider whether it will be possible to retain the fresh water marshes at Kranji for the heronry and, at the same time, to build the new transmission station. If it is technically feasible to do so and the additional cost is not prohibitive, then I would appeal to SBC to consider building the new station without destroying the heronry.

Third, the retention of the heronry at Kranji adds value to the quality of life in Singapore. Many of our young people love nature. There are increasing numbers of Singaporeans who love birds and derive great pleasure in visiting the various bird sanctuaries in Singapore. During the last celebration of Earth Day in Singapore, I was very impressed by the fact that some of our students raised money to give to the Sumatran Rhino Foundation in order to preserve this endangered species. The SBC has played an important part in helping our young people to love nature and to be sensitive to our own and the world's environment.

With warm regards,

Yours sincerely

TOMMY T B KOH
Chairman
Preparatory Committee for the 1992
UN Conference on Environment and Development

cc Mr S Dhanabalan
Minister for National Development



Malayan Nature Society
SINGAPORE BRANCH
BIRD GROUP

12 October 1990

Professor Tommy Koh
Ambassador - at - Large/Director
Institute of Policy Studies

Dear Professor Tommy Koh.

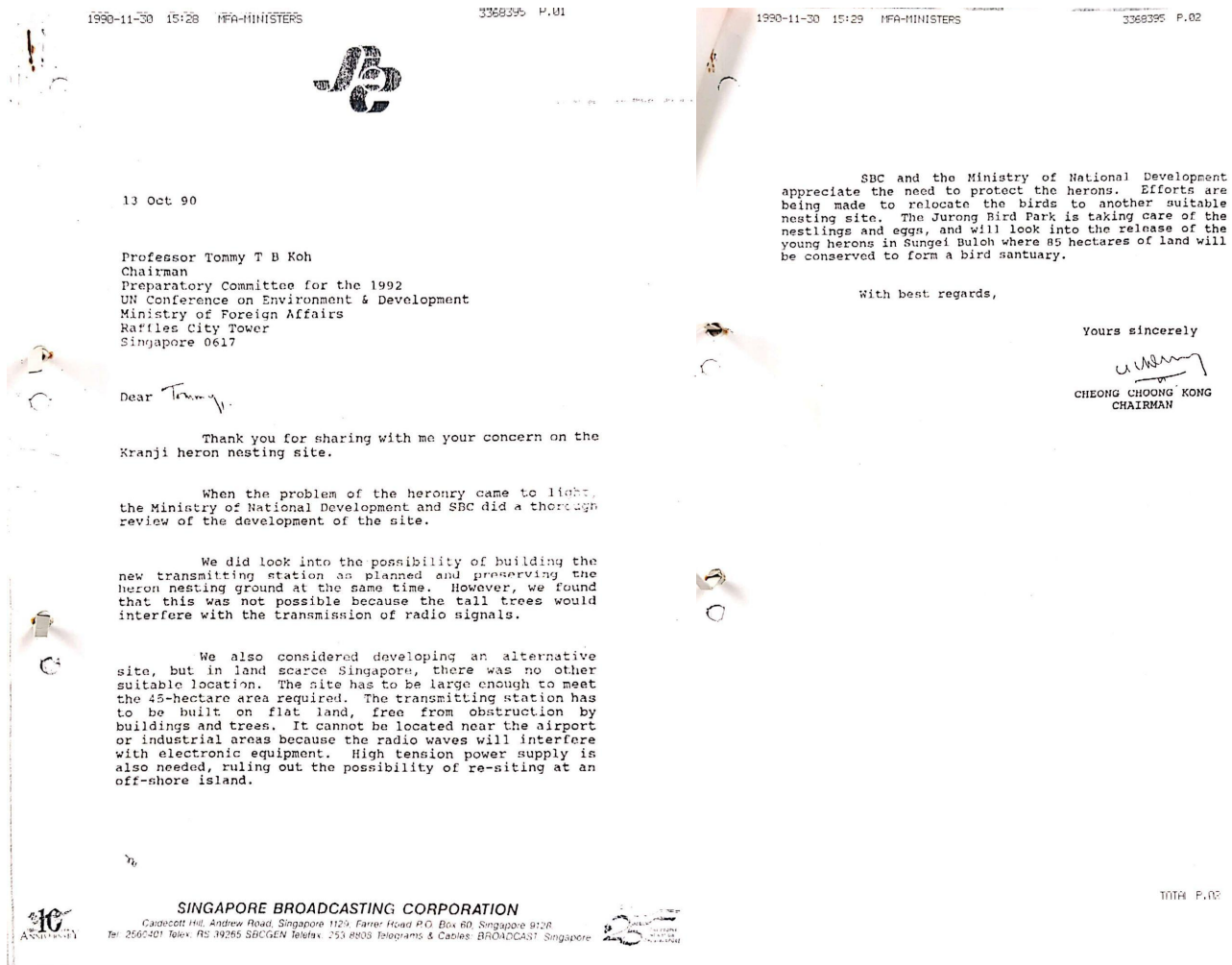
Ref: Conservation of Kranji Heronry and Marshes

Enclosed is a copy of our Conservation Proposal for Kranji Heronry and Marshes. You may have read of the evacuation of the Grey Heron nestlings at Kranji. So far, only 1/3 of the Heronry has been cleared by the Jurong Bird Park. Perhaps the rest can still be saved. We would like to appeal to you to support us in calling for the preservation of whatever is left of the Heronry and Marshes.

Thank You.

Yours sincerely.

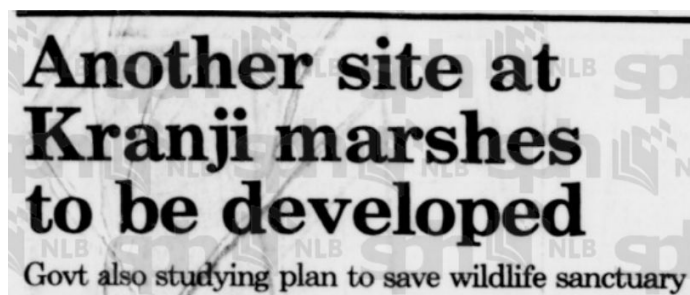
On 13 October 1990, SBC replied to Professor Tommy Koh stating that together with Ministry of National Development (MND), SBC had explored possibilities of re-locating the transmission station but to no avail. SBC also mentioned that they were working with Jurong Bird Park to relocate the herons.



Letter from Professor SBC to Professor Tommy Koh (Source: Nature Society Singapore)

Responses from MND and the Public

On 15 October 1990, MND and Urban Redevelopment Agency (URA) announced that they were studying the conservation plan submitted by MNSSB. The ministry spokesman said that the proposed heronry took up five hectares of the land earmarked for SBC's use. Additionally, it would also affect the water holding capacity of PUB's Kranji Reservoir.



The Straits Times, 15 October 1990 (Source: NewspaperSG)

In the same period, an article was published stating that 43 letters were submitted to the Straits Times forum, expressing their sympathy with the plight of the grey herons of Kranji. It highlighted the “trend towards greater awareness of nature and the environment”, comparing the 43 letters with the mere 8 letters received regarding the Elected Presidency.



The Straits Times Forum, 30 October 1990 (Source: NewspaperSG)



One of the letters from a member of public published in The Straits Times Forum, 10 October 1990 (Source: NewspaperSG)

Letter Correspondence to URA

Almost one year after the loss of the heronry to the transmission station, birders noticed that another construction work had started to clear the marshes in order to neaten the bunds of the reservoir. On 30 October 1991, MNSSB wrote to URA to bring to attention the newly-discovered heronries around Kranji Reservoir and appealed to keep the area undisturbed.

MALAYAN NATURE SOCIETY

(Singapore Branch)
c/o Department of Botany,
National University of Singapore,
Lower Kent Ridge Road,
Singapore 0511.

Mr. Liu Thai Ker
Chief Executive Officer
Urban Redevelopment Authority

Dr. Ho Hua Chew
Chairman
Conservation Committee

30 October 1991

Dear Sir,

Ref: Grey Heronries at Kranji Reservoir

This is to bring to your attention the existence of three Grey heronry sites around the Kranji Reservoir with a view to their preservation. These sites were discovered after the destruction of that at the SBC site. We recommend that these heronries and their surrounding areas be left undisturbed for their long-term survival.

1. Heronry near the PUB Bund (Refer to the relevant sketch-map attached)

This site is located just north of the BBC towers to the left of the PUB Bund. The nests are all placed on a tall Albizzia (falcatara) standing close to the water. Our last count of the nests comes to 18, with 20 immatures standing on the nests and around the canopy. This nesting colony is established by a group from the SBC site colony. The general area is recommended for preservation in our Conservation Proposal for Kranji Heronry and Marshes submitted to MND and URA earlier on.

2. Heronry at Kadut (Refer to the relevant sketch-map attached)

This site is near the junction of Sungei Kadut Drive and Sungei Kadut Street 1, close to the north-eastern shore of the Reservoir. As at the Bund site, all the nests are placed on one Albizzia (falcatara) which stands alone in the midst of the Acacia woods. 20 nests were counted, most of which are in use. This colony is also established by a group from the SBC site. Preservation of this colony requires the preservation of the Acacia woods as well to act as a buffer to the factories around the area.

3. Heronry at Jalan Lekar (Refer to the relevant sketch-map attached)

This site is located at the upper reaches of Sungei Tengah, at the edge of the water about 1 km from the entrance of Lorong Lekar. There are 4 nests, 3 placed in the cluster of Buta buta mangroves and 1 in a coconut tree closeby. All the nests are in use, with many young birds perched on the branches, at the time of last observation. However, it is imminently threatened by a reclamation project around the area. This site is probably established by another group from the SBC colony. Apart from this, there is a nest of the Purple Heron with 2 youngs, in the cluster as well. The preservation of this site requires that the marshy and shrubby area around the nesting site be left untouched to act as a buffer, as indicated in our sketch-map.

The total number of nests for the Grey Heron at these sites comes to 42--- way below the number counted at the SBC site, which comes to 66 at the least. This reduction in the number of nests does not bode well for the Grey Herons. With developments in many parts around the Reservoir already in the book, the further destruction of these newly established colonies will be detrimental to the future of a species that have added interest and colour to the Reservoir.

Yours sincerely



CC: Minister, MND
Minister, ENV
Ambassador-at-Large

Contact: 7726098

Letter to URA to indicate the location of the heronry around Kranji Reservoir (Source: Nature Society Singapore)

A few months later on 21 January 1992, URA responded that there is no future plans for the area and suggested to have a joint site visit to the sites proposed for conservation. The walk was however, postponed.



M09/PS/90/004-1

DID: 3218036
FAX: 2263546

21 Jan 92

Dr. Ho Hua Chew
Chairman
Conservation Committee
Malayan Nature Society
c/o Department of Botany
National University of Singapore
Lower Kent Ridge Road
Singapore 0511 Fax 7795671

GREY HERONRIES AT KRANJI RESERVOIR

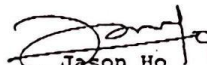
Please refer to your letter dated 30 October 1991.

2 The sites marked 1, 2 and 3 on Plan E in M09/PS/90/004-1 are earmarked as open space/recreational areas in the Concept Plan. As such, these sites will not be affected by development proposals for a long time.

3 As for the heronry at Jalan Lekar (site 4), it is within permanent agricultural land. We do not as yet know of any proposal to reclaim land in this area. We will, however, check with the relevant authorities like PUB to confirm this.

4 In addition, may I suggest that a joint site visit between MNS, URA, and PRD to the various sites mentioned be conducted so as to ascertain the extent of the proposed conservation areas at Kranji reservoir.

5 Please contact me at 3218036 to arrange for a suitable time for the proposed site visit. Thank you.


Jason Ho
Planner
for Chief Planner

cc Commissioner)
Parks & Recreation Dept) Is para 4 agreeable?
Attn: Mr Chia Seng Jiang)

Chief Executive Officer) Could we have your comments
Public Utilities Board) on para 3 please. Thank you.
Attn: Miss Sandra Joy Vaz)

Fax: 7313020

Plans for a Golf Course in 1999

It was announced on 13 January 1999 by the National Service Recreation and Country Club (NSRCC) that a new 18-hole golf course was likely to be developed along the banks of Kranji Reservoir, on top of the 13 other golf courses.



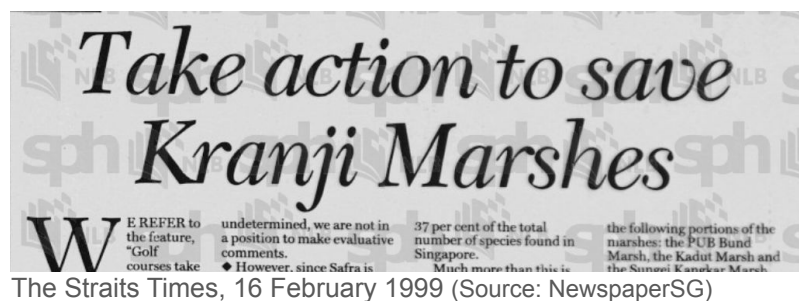
This triggered a series of public outcry on The Straits Times.



The Straits Times, 13 - 24 January 1999 (Source: NewspaperSG)

Campaign

On 16 February 1999, Dr. Ho Hua Chew wrote in to The Straits Times to express our concerns publicly. He pointed out that Kranji Marshes had been designated as a 'Nature Area' in the Singapore Green Plan 1993, thus necessary steps should be taken to protect Kranji Marshes. An environment impact assessment (EIA) was conducted and presented in May 2000, after the leasehold was conferred to NSRCC. Its findings were reported in April 2002, stating that about 140 species of birds (~40% of species in Singapore) were recorded. He expressed that in principle, NSS was not against setting up more golf courses if it did not destroy or degrade a nature area. Dr. Ho also reiterated on the biodiversity surveyed in Kranji Marshes and appealed for the conservation of the area.

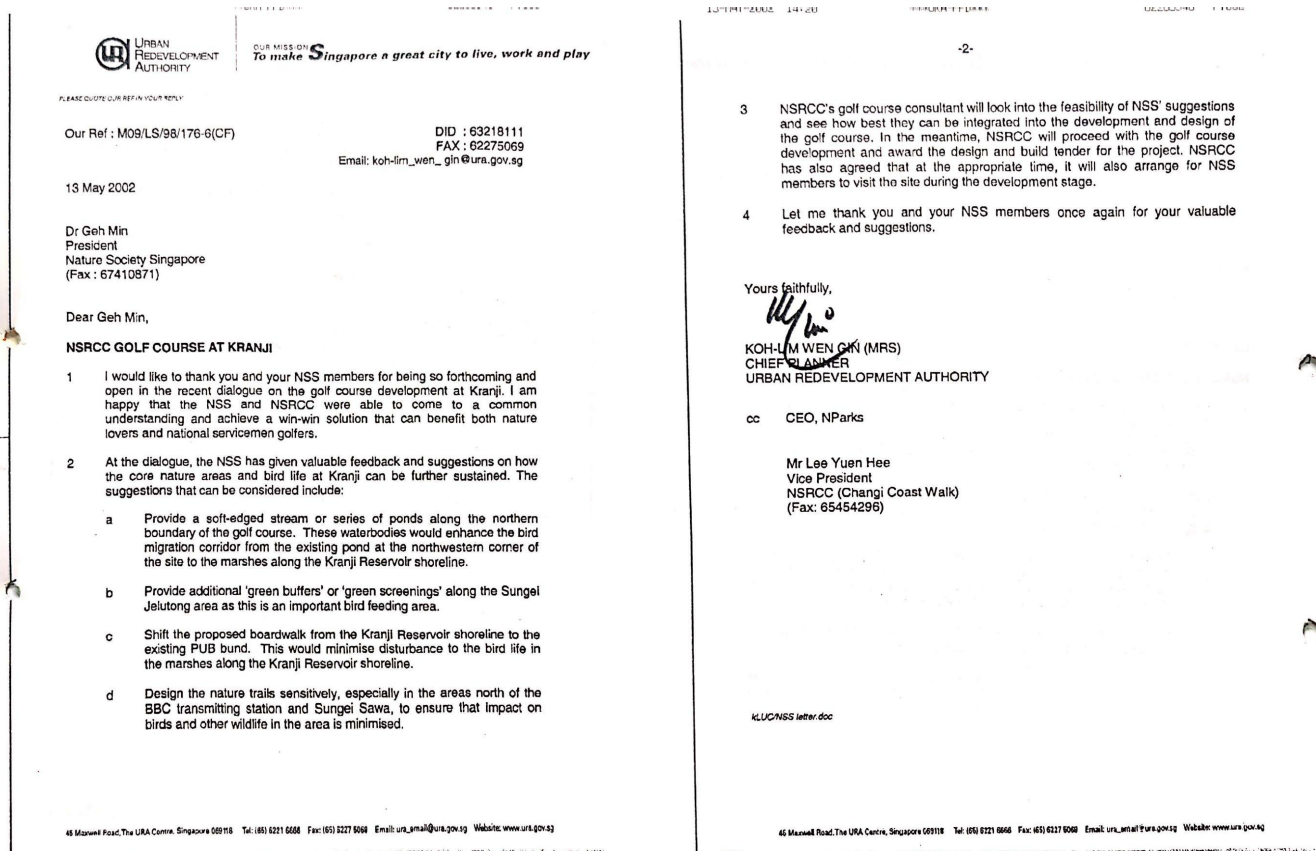


Nature Society (Singapore) (NSS) started to conduct a series of green walks, starting with Kranji Marshes to raise public awareness of unidentified green corners in Singapore. The walk at Kranji Marshes on 12 September 1999 attracted more than 200 participants after The Straits Times published the walk on 11 September 1999.



The Straits Times, 11 and 14 September 1999 (Source: NewspaperSG)

Closed-door dialogues began in 2002 and NSS provided feedback and suggestions to sustain the core conservation areas and bird life at Kranji Marshes. On 13 May 2002, URA wrote a letter to NSS to thank NSS, and to try their best to integrate the suggestions provided by NSS into the development and design of the golf course.



Letters from URA to NSS (Source: Nature Society Singapore)

On 21 May 2002, NSS also submitted a proposal for impact containment and mitigation at the Kranji golf course.

21 May 2002

Colonel Tang Mun Poh
General Manager
National Service Resort & Country Club
10 Changi Coast Walk
Singapore 499739


**Nature Society
(Singapore)**
510 Geylang Road
#02-05 The Sunflower
Singapore 389466
Tel (65) 6741 2036
Fax (65) 6741 0871
Patron:
Prof Tommy Koh

**NATURE SOCIETY (SINGAPORE)
CONSERVATION COMMITTEE**

Dear Colonel Tang,

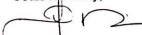
NSRCC Golf Course at Kranji


Thank you very much for the meeting and for hearing NSS views on NSRCC revised plan on the golf course project at Kranji, chaired by the Chief Planner of URA on 22 April.

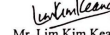
Enclosed are the finalised proposals on the containment and mitigation measures that are deemed necessary by NSS in order to preserve the biodiversity and long-term ecological viability of the remaining marshland allotted for nature conservation.

We would like to take this opportunity once again to express our willingness to clarify, assist and collaborate with NSRCC on any of the matters raised in our document attached.

Yours faithfully,


Dr. Geh Min
President, Nature Society


Dr. Ho Hua Chew
Chair, Conservation Committee


Mr. Lim Kim Keang
Chair, Bird Group

CC: Minister, Ministry of National Development
CEO, URA
CEO, NParks

**NATURE SOCIETY'S PROPOSALS
FOR IMPACT CONTAINMENT AND MITIGATION
AT THE KRANJI GOLF-COURSE PROJECT**

21st MAY 2002

Email: nss@nss.org.sg - NSS Website: <http://www.nss.org.sg>

Recycled Paper

Letter to NSRCC, enclosing the Nature Society's Proposals for Impact Containment and Mitigation at the Kranji Golf-Course Project (Source: Nature Society Singapore)

The proposal appealed for buffer zone from the water edge and provided details on enhancing the buffer zone. NSS also thanked URA for convening the meeting with NSRCC.

PREFACE

The Nature Society (NSS) submits this report pertaining to the issue of the Kranji Golf-Course Project on the understanding that the National Service Resort and Country Club (NSRCC) will be considering its proposals, some of which were mooted and accepted in-principle by NSRCC during the meeting on 22 April 2002. Owing to the lack of time during the meeting to study NSRCC revised plan thoroughly, NSS was unable to express other pertinent areas of concern as well as details in NSS mooted recommendations. In this regard, this document should be taken as the NSS finalised proposals.

The Nature Society wishes to forestall any future discord and misunderstanding and is putting on record our understanding of the agreed parameters arrived at between the stakeholders in the meeting:

1. Confirmation that the existing boundaries of the golf course would not be changed and that this condition is non-negotiable.
2. The programme for planning, course design and construction would be negotiated between NSRCC, NSS & relevant authorities. The following changes/actions would be implemented:
 - a) A 60 metre buffer from the water's edge of the shoreline would be created, with a larger core area around Sungei Sawa.
 - b) The buffer zone at Sungai Jelutong, the bay area at NSRCC northern boundary, is to be increased in line with the rest of the buffer zone.
 - c) The nature trail is to be modified --- there would be no board-walk nor any trail along the shoreline of the buffer zone. (At the meeting, NSS did recommend as an alternative that the nature trail could be re-routed along the PUB Bund running northwards but NSS has subsequently withdrawn this recommendation --- to be explained in this document).
 - d) Consideration is to be given to creative use of surface water connectors (non-concretise channels) instead of underground pipes.

i

e) Measures would be taken to minimise the adverse impact to wildlife during the construction stage.

NSS wishes to thank the Chief Planner of the Urban Redevelopment Authority (URA) for convening the meeting with NSRCC on 22 April 2002.

Dr. Geh Min
President, Nature Society

Dr. Ho Hua Chew
Chair, Conservation Committee

Mr. Lim Kim Keang
Chair, Bird Group

ii

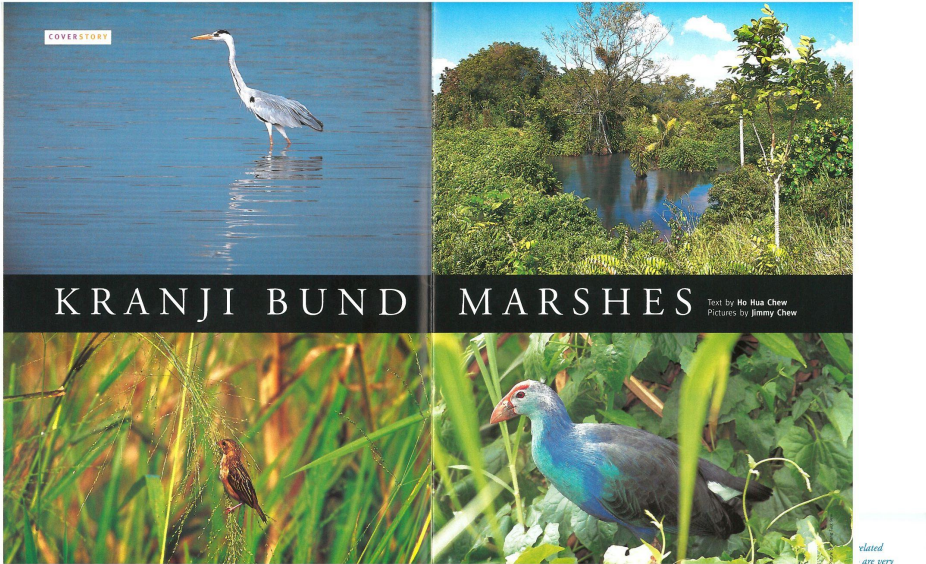
 Scanned with CamScanner

Nature Society's Proposals for Impact Containment and Mitigation at the Kranji Golf-Course Project (Source: Nature Society Singapore)

These discussions brought about a compromise between NSS and NSRCC. Eventually, a 60-metre stretch from the edge of the marshes of the North Kranji Bund Marsh was designated to be retained as a buffer for the wetland birds. This is in contrast from the PUB bund running parallel to the shoreline. The golf course took up about 60 hectares out of the 74 hectares on leasehold for the project, conserving 20-30% of the marsh north of the BBC station.

In the URA Master Plan 2003, the remaining spaces proposed in the conservation proposal in 1990 was earmarked as 'Open Spaces'.

A Nature Watch was published for the April - June 2002 volume, titled "Kranji Bund Marshes" to spread awareness about the plight of Kranji Marshes to NSS members.



KRANJI BUND MARSHES

Text by Ho Hui Chew
Pictures by Jimmy Chew

Icarurus halcyon banks, extraordinary analogies of land and water... Most fresh wetlands harbour an extraordinary variety of life, because after all they offer the best of both worlds to plants and animals... plenty of water and plenty of sunshine!"

— GERALD DURKELL

Background

The Kranji Bund Marshes, the most ecologically significant and extensive of the marshes in the Kranji Reserve, are the result of the damming of Sungai Kranji. The old Sungai Kranji was a tidal river with mangrove growing up to the farthest limits of the tidal influence. The damming of the river, over time, destroyed the tidal and mangrove habitat, which was a Nature Reserve under the colonial government before it was digested, resulting in the creation of extensive freshwater wetlands on the flooded land. Traces of the old habitat still survive to this day as can be seen in the clump of Nypa (*Nypa fruticosa*) growing along the western shore of the Kranji Wetland. On the inland side, it is bordered by the Kranji Radio Transmitting Station, the Zoo's Farm and the SIMCO Transmitting Station. Six Nypa

Trees. The total mangrove ground here comes to about 90 ha and is more or less divided into two sections by the BRG transmission station, which runs in the east-west direction. The northern section, called the North Kranji Bund Marsh, is estimated to be about 50 ha in size while the southern section, called the South Kranji Bund Marsh, is estimated to be about 40 ha.

The Kranji Marshland Habitat

The Kranji Bund Marshes are a different type of habitat from the nearby Sungei Buloh Nature Reserve, which is a tidal wetland consisting largely of mangrove and mudflat. It is also different from Chua Kuan, which is a coastal habitat consisting mainly of sea grasses, sand and rocks. Although there are some overlapping conditions and features, the Kranji marshland has its own distinctive ecological elements, processes and wildlife which thrive only in this sort of habitat: a freshwater wetland dominated by grasses, egrets, ferns and other plant species that are adapted to a

flooded or waterlogged condition, fringing the shoreline and the banks of rivers and streams as well as the edges of the ponds, and are extensive to various categories of wildlife such as aquatic reptiles, amphibians, fish and herons.

The plant species vary in composition depending on the degree of saturation. In the deep pools, aquatic plants such as Water Hyacinth (*Eichhornia crassipes*), Hyacinth (*Hyacinth verticillata*), Water Spangle (*Salvinia natans*), and Water Lily (*Nymphaea p.*), predominate, while in the shallow pools and streams, the Water Cordgrass (*Pennisetum polystachion*) and Yellow Bulrush (*Limnolobos filiformis*), take over. In soggy places, the vegetation is dominated by ferns such as the Aker Rube (*Osmunda pinnatifida*) and *Poa* (*Utricularia* spp.), and also such as the Greater Alkaline (*Alcaluca macrocarpa*) and the Coccinea (*Galium rotundifolium*), as well as the Buffal Grass (*Dactyloctenium aegyptium*).

In the drier parts, constituting the transition to completely dry land, the prevalent vegetation are shrubs such as the Green Golden Candlestick (*Cassia alata*), Sea Hibiscus (*Hibiscus sabdariffa*), Swamp Air (*Dioscorea sibirica*), as well as the grasses like the Panic Grass (*Panicum p.*).

Importance of Kranji Marshland for Nature

Apart from the benefits, it must be said that very little is known of the biodiversity of the Kranji Reserve marshes. The Kranji Reserve marshes, with its variety of land cover and habitats, harbours an abundant wildlife that is rich in species. A total of 140 species has been recorded by the Nature Society (Singapore) since 1985, about 40 per cent of the total (200) recorded for Singapore, which is very impressive (U.S. 196, 1985). One of the most common resident species, while the other water visitors or migrant species (inclusive of specialists and non-specialists) amount to 47, out of which 23 are residents, meaning that a large variety of birds are dependent in some way or other on the Reserve's freshwater marshes.

The Reserve's marshes are the stronghold of the Grey Heron (*Ardea herodias*) and Purple Heron (*Ardea purpurea*). The Grey Heron is a Nationally Threatened Species, while the Purple Heron is a Nationally Near-threatened Species (Lim, 1999). The Grey Heron is

fluctuated or waterlogged condition, fringing the shoreline and the banks of rivers and streams as well as the edges of the ponds, and are extensive to various categories of wildlife such as aquatic reptiles, amphibians, fish and herons.

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breeds only in two areas of Singapore - in the Kranji Reserve and the Western Catchment (Lim, 1992). It is usually seen foraging for plants and other food by the edges of the Kranji Bund Marshes. The most commonly seen mall in the prey is White-headed Warbler (*Acrocephalus albastris*), sharing whatever there is also found here, such as the Stop-billed Rail (*Galinula striata*), White-headed Cuckoo (*Ptilopus tricolor*) and Red-billed Cuckoo (*Ptilopus tricolor*).

Another group of birds that is also specially adapted to the marshland habitats are the waterbirds. In 1985, the MNS (Singapore Branch) submitted an outline proposal for a new nature reserve in the marshes (Beffner, 1985), but this was rejected by the relevant authority (Beffner, 1989).

In 1989, the Kranji Reserve marshes, together with five other Singapore wetland sites, were included in the IBCN's *A Directory of Water Wetlands*. The Directory emphasizes that the freshwater marsh is a highly rare type of habitat in Singapore and Peninsular Malaysia (Scott, 1989). The only other extant example of this habitat in Singapore and also included in the Directory is the Bryan Marshes in the military area of the Western Catchment Area, which is little known in terms of biodiversity.

In 1990, when the plan for the SIMCOI transmission station was to be sited at the Grey heron area, a conservation and management plan was submitted by MNS to the relevant authorities (Ho, 1990). The proposal to have the heron area was signed on the grounds that an alternative site was not available and it would be more interesting to have the heron area as a nature reserve. This was a very interesting development because *The Straits Times* was bombarded with an unpre-

cedented mail of 43 pro-conservation letters, leading the Forum Editor to comment that "The fact that so many letters were received on an environmental issue compared to some would be a far more important issue like the Elated President (right-learn) sports volunteer or the prevailing problem of our citizens, at least those who write to this newspaper... this group of Singaporeans was obviously moved by their interest for a changing species to take a stand..." (Thong, 1990).

After this unprecedented incident, the MNS (Singapore Branch) conservation *Merry Pheasant* was published, in which the Kranji Bund Marshes, and a five-acre site, was recommended with 27 other sites for conservation (Beffner, 1990).

Then, in 1993, the Kranji marshes, with 18 other sites, was put into the Singapore Green Plan (SGP) as a "nature conservation area". Although the SGP did not set aside the area for nature conservation in Singapore, what is most worrying is that apart from the Nature Reserve and other sites under the National Parks Act (1996), the area size and boundary of these sites are not delineated in both the completed Development Guide Plans (DGP) and the 1998 URA Master Plan - despite the promise that it will be done over "the next five years" after 1993. This does not bode well for the long-term survival of the marshes (as well as the other sites with an unclear boundary delineation).

When the National Service, Recreation and Country Club (NSRCC) first announced its intention of developing a second golf course in the Kranji Reserve area in 1999, the Nature Society (NSS) expressed its concern publicly that the project should not be located in the "nature reserve" area. This justification given (*The Straits Times*, 16 February), NSS' concern was emphasized in subsequent informal meetings with NSRCC with a request for NSS involvement in the project planning process. NSS submitted a feedback report to NSRCC in March 2002, after conducting a rapid survey of the habitat in the project site (see *Appendix 1*).

NSS is not averse to the construction of the golf course *per se*. It was looking for a win-win solution, where national development can have an area of nature where nature lovers as well as countryside enthusiasts can still continue to enjoy a safe, interesting and beautiful landscape. To avoid any severe and

irreversible damage to the ecosystem of the North Kranji Bund Marsh, the developer site for the golf course, NSS had requested NSRCC to consider more carefully about the golf course as one of the three other options that were also offered by the Urban Redevelopment Authority (URA).

These sites were: 1) An area in Area 1, 2) an area in Chua Chu Kang near the new Warren Golf Course, and 3) an area south of the Tengah Airfield off Chua Chu Kang Road. Another alternative site was proposed was to move part of the golf course into the Sungei Buloh Nature Reserve area south of the Kranji Radio Transmitting Station so that a larger marshy area from the shoreline could be saved. The benefits of this site advocated by NSS being about 200 m from the shoreline was opposed to NSRCC's initial 100 m from the shoreline. NSS also pointed out that the site is not ecologically sensitive and that it is most unfortunate that the Environmental Impact Assessment (EIA) that is relevant to the selection process was conducted only after the marshland was confirmed to NSRCC in May 2000. In this regard, the EIA has no bearing at all on the site selection process, which should not be the case given that the area chosen for the project is designated a "nature area" in the Singapore Green Plan and that there

is no other officially available sites worth considering as alternatives.

The NSRCC's EIA yielded about 160 bird species in the area, which is an impressive record, constituting about 40 per cent of the total number of species (180) recorded for Singapore. NSRCC's total includes with the NSS record of 140 species for Kranji Reserve reserves since 1985. The NSS record is restricted to only the North Kranji Bund Marsh, which is a freshwater wetland. The EIA findings here are obtained from a bird nest survey at the site meeting on 22 April 2002. It is the document that the project is designated a "nature area" in the Singapore Green Plan and that there

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A lot of marsh vegetation at a waterlogged patch provides for a diversity of wildlife.

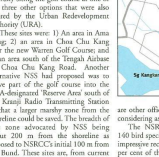


A lot of marsh vegetation at a waterlogged patch provides for a diversity of wildlife.

A beautiful site, the Bush-logged site, can be seen near the water channel.



A beautiful site, the Bush-logged site, can be seen near the water channel.

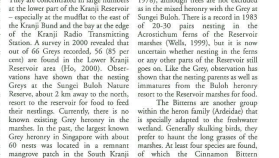


A map showing the location of the Kranji Bund Marshes, including the Sungei Buloh Nature Reserve, Kranji Bund, and the proposed golf course site.

The diversity of an abandoned aquaculture pond.



The diversity of an abandoned aquaculture pond.



The diversity of an abandoned aquaculture pond.

More Meetings with Stakeholders

On 29 June 2004, a second meeting was held for NSS, NSRCC, URA, NParks, NUS and DSTA to present on the key conservation measures committed by NSRCC.

MINUTES OF MEETING ON THE NSS VISIT TO NSRCC KRANJI SANCTUARY GOLF COURSE HELD ON TUESDAY, 29 JUN 04 AT 1600HRS AT NSRCC KRANJI GOLF COURSE CONFERENCE ROOM.

Present

NSS
Dr Geh Min - President, NSS
Dr Ho Hua Chew - Chairman, Conservation Committee Nature Society
Sunny Yeo - Secretary, NSS

NSRCC
Lee Yuen Hee - Vice-President, NSRCC
Tang Mun Poh - General Manager
Chiu Cho Wah - Manager (KSGC)/Senior Manager (i Golf)
Vivien Teo - Manager, Membership & Marketing
Rodney J Mckeown - Golf Superintendent

URA
Lim Eng Hwee - Director, Physical Planning Division
Marc Boey - Head, Physical Planning North
Serene Ting - Executive Public Relations Officer

NPARKS
Dr Lena Chan - Assistant Director, Nature Conservation
Cheryl Chia - Senior Biodiversity Officer
Shamril Jamil - Manager, Planning

NUS
A/P Navjot S. Sodhi - Consultant for Ecosystem Study
A/P Hugh Tan - Consultant for Ecosystem Study

DSTA
Tan Tze Leng - Programme Manager, CP3
Peh Seoh Chin - Project Manager
Francis Ong Keng Cheok - Project Officer
Lee Vincent - Project Officer
Lee Woon Kong - Project Officer

1. The meeting commenced at 1610 hr with VP, NSRCC welcoming NSS to Kranji Sanctuary Golf Course.
2. Mr Tan T L follow-uped with a presentation on the key conservation measures committed by NSRCC during the meeting with NSS on 29 Apr 02 as follows:
 - a. Retain existing core marshland areas along Kranji Reservoir and next to BBC Transmitting Station
 - b. Retain key existing plant species



NATIONAL SERVICE RESORT & COUNTRY CLUB 3, Singapore Walk #02-05
10 Changi Coast Walk Singapore 499729 Tel 6342 8288 Fax 6343 6388 Website: www.nsrcc.com.sg

Resort & Country Club

NSRCC 1/3-20/3

30 June 2004

Dr Geh Min
President
Nature Society (Singapore)
510 Geylang Road
#02-05 The Sunflower
Singapore 389466

Dear Dr Geh Min

It was a pleasure to have you and your colleagues of the Nature Society visit Kranji Sanctuary yesterday. We seriously want to ensure that our conservation effort at Kranji will bear fruit. There are positive signs, as you and your colleagues have seen, but there is much work left to be done.

We would certainly like to work more with Nature Society, as we have done in Changi. Our next goal is to obtain the Audubon Sanctuary certification for Kranji and for that we will definitely call on Nature Society's expertise in bio-diversity surveys and outreach programmes to put us within reach of that goal.

I thank you and Nature Society for the good work that you have done for Singapore.

Yours sincerely

TANG MUN POH
General Manager
National Service Resort & Country Club

cc : CDF/President, NSRCC
DMP/Vice-President, NSRCC
Manager (Course Maintenance)
Manager (Membership & Marketing)



(Printed on Recycled Paper)

Minutes sent to NSS from NSRCC and letter from NSRCC showing appreciation for the advocacy work done by NSS (Source: Nature Society Singapore)

Adoption of Kranji Marshes by Nature Society (Singapore)

On 17 March 2008, Dr Ho Hua Chew wrote to PUB to request to adopt Kranji Marshes to care for the marsh and to educate visitors and recreational users.

Subject: Kranji Marsh Adoption Proposal
Date: Monday, 17 March, 2008 3:24 pm
From: Hua Chew Ho <hoho@starhub.net.sg>
To: <Yap_Kheng_Guan@pub.gov.sg>
Cc: <dmcm@singnet.com.sg>; <lim_chuan_hoe@pub.gov.sg>
Conversation: Kranji Marsh Adoption Proposal

Nature Society's Proposal for the Adoption of the Kranji Marsh @ Neo Tiew Lane 2

Mr Yap Kheng Guan,
Director of the Three Ps, PUB

Dear Mr Yap,

We understand that the Kranji Reservoir and the Lim Chu Kang area will soon be opened up for recreational and leisure activities --- as was discussed in the URA's workshop on the Master Plan for Leisure, in which the Society was involved as one of the participants. We envisage that for PUB the years ahead will be an exciting and challenging time in view of the burgeoning of recreational activities and the big influx of visitors to the Reservoir area.

The ABC Waters Programme is very innovative and communitarian in its orientation by imbedding it in the Principle of the Three Ps (the Private, the Public & the People.) We support strongly PUB's policy of managing our water-bodies through the hands-on involvement of the people --- to keep our water clean and well-appreciated and its consumption sustainable.

The thrust in the Programme towards an ecological dimension is most heartening. In this light, the Society as one of the People stakeholders would like very much to assist in carrying out the ecological objective of the Programme by taking care of the Kranji Marsh under the PUB's Adoption Scheme.

The location of the Marsh is at the end of Neo Tiew Lane 2 ---

to the north of the Pumping Station and south of the BBC Transmission Station. For the exact location, see the sketch-map attached

We have the following proposed plans/projects that we could implement in stages for the care of the marsh and the education of the visitors and recreational users of the Kranji Reservoir:

A) Care of the Marshland

- 1) Opening up of the much clogged-up pond to have an extent of open water. Currently the pond is so clogged up with aquatic plants that some species of birds are no longer present (e.g. Lesser Whistling Duck, Common Moorhen)
- 2) Clearing of undesirable plants & human-discarded rubbish.
- 3) Small-scale enhancement of the pond habitat to attract birds and other wildlife.
- 4) To set up a vigilance system to deter poachers (e.g. illegal anglers.)

B) Educational Activities/Projects

- 1) To conduct nature walks for the public as well as for NSS members on a regular basis --- for appreciation of the plants, birds & butterflies. The walks can also cater to farm visitors & other recreational groups. These walks can start from the entrance of Neo Tiew Lane 2 --- so that the visitors need not have to go in to the Marsh with vehicular transport. This is to avoid congestion at the marshland area.
- 2) Eco-educational activities for children and students. The Nature Society's successful and ongoing Fun With Nature

Programme can be applied here.

- 3) If funds are available, setting up an information board on the marshland ecosystem and its wildlife.
- 4) Publication of an informational brochure on the marsh and its wildlife.

C) Study & Research

- 1) Conduct a baseline survey of the Marsh and its surrounding habitats for plants, birds, butterflies and other wildlife.
- 2) Conduct and/or assist in any feasible ecological studies, especially on endangered marshland species for rescue & regeneration.

D) Advisorial Role

- 1) To assist PUB through providing ecological & biodiversity information for decision-making or problem-solving on any aspects of the waterbody management arising from the implementation of the ABC Waters Programme.

We will happy to meet up with you to discuss the various points indicated above and any other issues that you may like to bring up to our notice.

We hope you will consider our adoption offer in a favourable light.

Yours sincerely,
D. Ho Hua Chew
Kranji Marsh Adoption Liaison
Nature Society (Singapore)
Tel. Contact: 64571196

Email from NSS to PUB to request to adopt Kranji Marshes (Source: Nature Society Singapore)

Nature Society's (NSS) Proposed Programme for the Adoption of the Kranji Reservoir

A) Introduction

1. We understand that the Kranji Reservoir and the Lim Chu Kang area will soon be opened up for recreational and leisure activities --- as was discussed in the URA's workshop on the Master Plan for Leisure, in which the Society was involved as one of the participants. We envisage that for PUB the years ahead will be an exciting and challenging time in view of the burgeoning of recreational activities and the big influx of visitors to the Reservoir.
2. The ABC Waters Programme is very innovative and communitarian in its orientation by imbedding it in the Principle of the Three Ps (the Private, the Public & the People.) We support strongly PUB's policy of managing our water-bodies through the hands-on involvement of the people --- to keep our water clean and well-appreciated and its consumption sustainable.
3. The thrust in the Programme towards an ecological dimension is most heartening. In this light, the Society as one of the People stakeholders would like very much to assist in carrying out the ecological objective of the Programme by taking care specifically of the Kranji Marsh area at the Kranji Reservoir.
4. For the Nature Society, its participation will be carried out through the promotion of nature education and ecological care of the waterbody, more specifically at the Kranji Marsh, with the overall objective of inculcating nature appreciation among the people.
5. With the appreciation of nature in and around the waterbodies, the fondness for our waterbodies can be deeply enhanced among the people so that care for their cleanliness and sustainable use is not just a matter of health and survival but also one of pleasure as well.

B) Area & Location

1. The area for adoption is estimated to be 15 ha in size and is located at the end of Neo Tiew Lane 2 --- to the north of the PUB Pumping Station and south of the BBC Transmission Station. For the exact location, see the sketch-map attached.

C) Biodiversity

1. The Kranji Marsh is the last substantial chunk of freshwater marshland that is extant around the shoreline of the Kranji Reservoir. The habitat consists of mostly aquatic and semi-aquatic vegetation such as the Yellow Burhead, Pondweed (*Monochoria hastata*), Panicum and Elephant grasses, Ladder and Acrostichum ferns as well as Simpoh Air on the drier ground. The Pondweed (*M.*

The Nature Society adopted the area of the URA-designated Kranji Marshes Park under the PUB Water-bodies Adoption Scheme in 29 November 2008. The designated Marshes area is located along the north-western shore of the Kranji Reservoir, south of the Kranji Sanctuary Golf Course. The area in total is estimated at 39 hectares, with adjacent woodland, and is a major freshwater marshland habitat in Singapore harbouring a rich biodiversity in terms of its birdlife and butterflies.

The Adoption project was carried out through the promotion of nature education and ecological care of the marsh, with the overall objective of inculcating nature appreciation among the people. The focus was to a) Habitat Restoration & Enhancement i) Opening up of the much-clogged-up pond near the PUB Pumping Station. ii) Clearing of undesirable plants in the general marshland area and the inlets & streams feeding into the marshland. iii) Enhancement of the pond & marshland habitat to attract birds and other wildlife. b) Deterrence Against Poaching i) To keep an eye on poachers in the area ii) Where opportunity arises, to educate the poachers to desist from their activities.

The overall project was supported by sponsorships from Bloomberg Organization and from the NEA-organized CEO Run at Semakau in 2008.



The Launch officiated by the PUB's Assistant Chief Executive, Mr Chan Yoon Kum, who was presenting the Adoption Plaque to Dr Shawn Lum, NSS President
(Source: Nature Society Singapore)

Restoration of Kranji Marshes by Nature Society (Singapore)

As the ponds were drying up, restoration of these ponds began. Leaving behind the important patches, the wild vegetation was be carefully cleared to create an open water area conducive to fowls like the Lesser and Wandering Whistling Ducks. The intent was to attract more water birds and preserve the biodiversity of the area.



Tree branch was collected, transported and placed in the ponds to provide a perch for birds on 13 September 2009 (Source: Nature Society Singapore)

Secondary students and corporates were also volunteered their time with NSS to maintain the pond by removing unwanted vegetation and unclogging streams that lead to the ponds, from 2010 to 2011.



Students from River Valley High School and staff from Bloomberg and Morgan Stanley involved in pond maintenance over 2010 to 2011 (Source: Nature Society Singapore)

Surveys were also conducted in 2010. Sightings of Common Moorhen, Cotton Pygmy Goose (at risk of local extinction) were recorded. Bird species that were not previously sighted, such as the Intermediate Egret, Yellow Wagtail, and Von Schrenck's Bittern were also recorded.



At least 17 Grey Herons were sighted foraging and resting. Common Moorhen was also spotted. 2010 (Source: Nature Society Singapore)

Outcome

On 2 February 2006, it was announced that the 56.8 hectares of Kranji Marshes will be opened as the largest freshwater marshland in Singapore.

Largest freshwater marshland in S'pore opens

Audrey Tan

33 species of dragonflies and more than 170 species of birds – including the critically endangered

land Reserve, the 56.8ha Kranji Marshes is roughly the size of 60 football fields. It is the largest and

of World Wetlands Day today.

He said: "In our dense urban landscape, nature conservation and

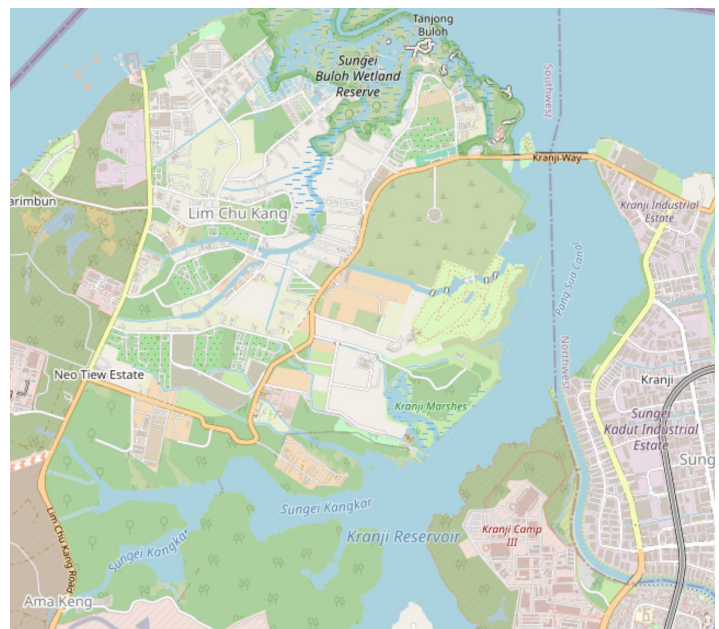
The Straits Times, 2 Feb 2006 (Source: NewspaperSG)

Kranji Marshes Today

Today, where the SBC transmission station was is now agricultural space. In 2020, Kranji Marshes also became part of the 400-hectares Sungei Buloh Park Network.

At the same time, Kranji Marshes is recognised as one of the three Important Biodiversity Areas (IBA) by Birdlife International, as part of the Kranji-Mandai IBA, for its significance for the international conservation of bird populations and to secure the long-term conservation of these areas that are significant to birds and biodiversity. This is due to the presence of Chinese Egret, Great Knot, and Straw-headed Bulbul recorded in the area. NSS continues to lead walks during migratory season in the Core Conservation area, which is not opened to public.

What is most heartening today is that the Kranji Marshes Park has been linked on the northern front by the official designation as a green corridor of the remaining marshes along the buffer of the Kranji Sanctuary Golf Course, through to the Kranji Coastal Nature Park to Sungei Buloh Wetland Reserve. On the southern front, there is also the remaining marshes along the northern flank of the Kangkar branch of the Kranji Reservoir being recently designated the 'Gemala Nature Area', a new nature area as a result of a collaborative effort of NParks and NSS in 2014 for the Singapore Green Plan. These conservation developments will enhanced the long-term viability of the Kranji Marshes Nature Park and the neighbouring remaining marshes along the Reservoir.



Kranji Marshes in the 2010 map of Singapore (Source: <https://libmaps.nus.edu.sg/>)