

## THE FATE OF THE "PRINCESS BIRD," OR WHITE-EYED RIVER MARTIN (*PSEUDOCHELIDON SIRINTARAE*)

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### ABSTRACT

The White-eyed River Martin was discovered in 1968 and is known only from Bung Boraphet, a reservoir and marsh in central Thailand, where it has existed as a relict population. However, the species has not been seen in over four years, and there are fears for its survival.

This report summarizes the information known thus far about the White-eyed River Martin. The history and methods of swallow trapping at Bung Boraphet are reviewed, as is the history of research on the species. Recommendations aimed at protecting the river martin are presented, including strict enforcement of wildlife laws and ratification of the "Ramsar Convention" to declare Bung Boraphet a wetland of international importance.

### INTRODUCTION

In January 1968, while on an expedition to trap and band marsh birds, a team of Thai scientists stumbled onto a remarkable discovery: tangled in a net among hundreds of swallows was a single, anomalous bird whose white eye-rings readily distinguished it from the other captives. Six months later, Kitti Thonglongya, expedition leader and Curator of the Thai National Reference Collection, published his exciting find in an article entitled "A New Martin of the Genus *Pseudochelidon* from Thailand" (THONGLONGYA, 1968). Not only was the bird a new record for Thailand—it was a species new to science.

A member of the swallow family, *Pseudochelidon sirintarae* is distinguished from the common Barn Swallow (*Hirundo rustica*) in having a longer and more massive bill, noticeably larger feet, black plumage with a white rump and prominent white eye-rings which have inspired both the parochial name, "nok ta pong" (or "swollen-eyed bird"), and the common name, White-eyed River Martin. Other characteristics include nine primary feathers (those of other swallows number 9 + 1, the tenth being reduced) and two wire-like plumes extending from the tail in adult birds. Kitti

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proposed the species name in honor of H.R.H. Princess Sirindhorn Thepratanasuda for her gracious interest in the Kingdom's wildlife. Thus, *P. sirintarae* is also known as the "Princess Bird."

Although 16 years have passed since Kitti collected the first specimen, almost nothing is known about the river martin's life history: scientists know only that the birds occur at Bung Boraphet from at least December until February and that they roost at night in reed beds. The species is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), recorded as "status indeterminate" in the ICBP Red Data Book (KING, 1981) and as "endangered" in the ICBP World Conservation Priorities (ICBP, 1981).

### HABITAT

Bung Boraphet (Fig. 1), the only known location of the White-eyed River Martin, is a fresh-water reservoir and marsh 20 km east of Nakhon Sawan in central Thailand. The reservoir was created in 1928 when construction of a dam and a series of dikes impounded water from Khlong Boraphet, inundating a natural swamp near the headwaters of the Chao Phraya River. This led to the establishment of a fresh-water fisheries, under supervision of the Royal Fisheries Department, covering a total of approximately 25,600 ha with an average depth of 3 m. A "no fishing-area" (6241 ha) and a "restricted fishing area" (15,040 ha) were delineated in 1947. In 1979, the Wildlife Conservation Division (WCD) of the Royal Forest Department established a non-hunting area of 10,600 ha within the reservoir and marsh (WCD, n.d.).

The reservoir's ten major islands are dominated by *Phragmites karka*, which is generally found in the center, and surrounded by *Coix aquatica*, *Eichornia crassipes* and *Isachne globosa*, among others. Shoreline vegetation is predominantly *Coix aquatica*, *Polygonum tomentosum* and *Phragmites karka*. Representative species in the surrounding marsh area include *Trapa bispinosa*, *Cyperus difformis*, *C. platystylis* and *Nelumbo nucifera* (INLAND FISHERIES DIVISION, 1973). In addition, lotus cultivation has spread into many parts of the lake.

### TRAPPING HISTORY AND METHODS

Part of the history of the river martin's exploitation at Bung Boraphet was unraveled by amateur ornithologists from the Bangkok Bird Club who visited the reservoir in 1980 and met a villager, Pan Yoonaiyanethr, who had lived in a houseboat on the reservoir for 30 years. Formerly, Pan made a living collecting crocodile eggs, which he hatched and raised to a size of 1 to 2 feet. He then sold the animals for about 500 baht (US\$25) apiece, a profitable trade until overharvesting eventually



Figure 1. Bung Boraphet: lotus cultivation (foreground), and reed island (background).



Figure 2. Throw net being flung over swallows roosting in the reed bed.

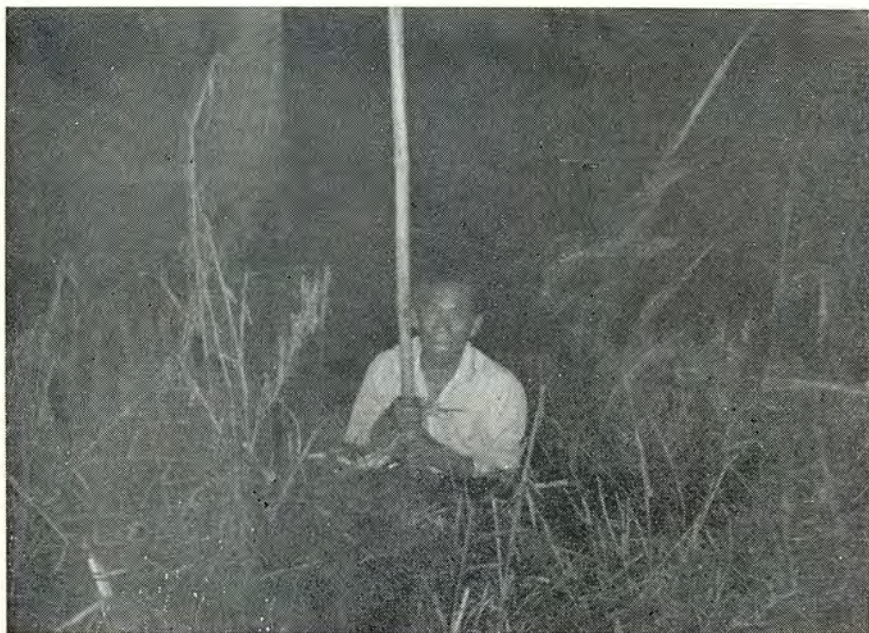


Figure 3. Mr. Pan erecting the funnel trap on a floating reed bed.



Figure 4. Removing birds from the funnel net.

exterminated the crocodile. Facing the loss of his profession, Pan learned a new trade 16 years ago from his Islamic relatives: bird trapping. Although nothing is known of the number of river martins captured prior to 1968, it is known that Pan and other bird trappers sold a total of about 120 martins at 5 baht each to the director of the Fisheries Research Station during the one to two years following Kitti's discovery. Regrettably, all of the birds quickly died in captivity (PAN, pers. comm.). Additionally, in 1971, the Dusit Zoo in Bangkok obtained one pair of birds which also died shortly after acquisition (Bangkok Post, 6 February 1971), and there have been several instances of river martins being offered for sale in local markets during January and February (KING & KANWANICH, 1978).

Pan developed two trapping methods to catch swallows (including the White-eyed River Martin), buntings and other small birds which could be sold as food at the Nakhon Sawan market. These methods were later used by Kitti and other biologists in attempts to study the river martin. One method involved a throw net (Fig. 2), which is more commonly used to catch fish. In a motorboat, Pan tracked the large swallow flocks at dusk as they flew to their roosting sites on islands in the reservoir. The following night when the birds had settled in the *Phragmites* reeds and were quiet, he would sneak silently in a small skiff to the island's edge and throw a net over the reeds, trapping the birds underneath. Once thrown, the net was slowly drawn closed and a light was shown on the top end to attract the birds away from the opening. The birds were then extracted by hand and placed in a holding cage. A single throw could capture 200 or more birds but could not catch those roosting in the island's center.

In order to increase the catch, another method was devised which involved a large funnel trap made from a commercial fish net (Figs. 3-5). The funnel was 24 m long and supported by six long bamboo poles, three on each side. The opening was about 5 m high, narrowing to 16 cm at the opposite end, where a holding cage was attached. Unlike the simple throw net method, this operation depended on the cooperation of at least five men to erect the trap after all the swallows had settled at the roost. This involved flattening reeds near the roost and attaching the net to the six bamboos, which were then pushed into the mud of the reservoir floor. The entrance was opened by raising the front edge of the trap with pulleys attached to the two front bamboos. When the trap was ready, three or four men, each holding one section of a long rope, formed an arc in front of the roost and then slowly walked towards the trap entrance while dragging the rope through the reeds. The birds moved ahead of the rope and, just before reaching the trap, the men made a sudden rush to the opening, thus herding the birds into the funnel. Two men stationed on either side of the opening then lowered the net, trapping the birds inside. This method was extremely effective at

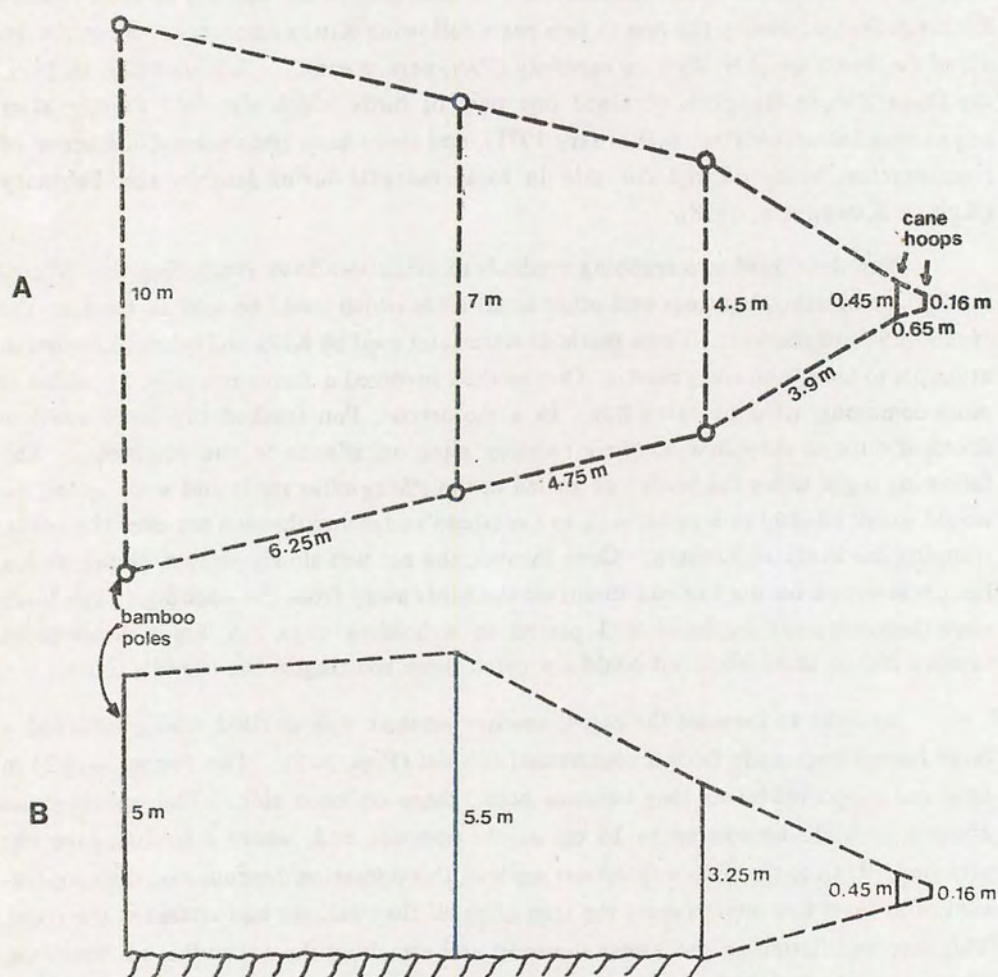


Figure 5. Plan and cross section of the swallow trap. A, top view; B, side view.

times, often netting upwards of 2000 birds, but it could only be used on moonless nights when the birds could not see and avoid the trap. Erecting the trap was a long and arduous task because the reed beds could just barely hold a man's weight. Furthermore, use of the funnel trap caused substantial disturbance to the roost, resulting in abandonment by the remaining birds for several days.

### HISTORY OF RESEARCH

There have been just four attempts to locate the White-eyed River Martin by night trapping. Three were made by Kittī, the first during the end of January to the middle of February 1968; one bird was taken on 28 January, another on 29 January and seven birds were taken on 10 February (THONGLONGYA, 1968). The second attempt, in March 1968, was unsuccessful. The third attempt, in December 1968, resulted in one more bird being collected (MCCLURE, 1969).

The last netting attempt was made by a team from the Association for the Conservation of Wildlife (ACW, 1981). The team, which included Dr. Boonsong Lekagul, Robert Dobias, Philip Round and David Melville, visited Bung Boraphet on four occasions during the winter of 1980-81: 23-24 November, 13-16 January, 12-15 February and 5-7 March. The study's objectives were to establish through field observation and trapping whether the species was still present at Bung Boraphet and to obtain information on its life history. Captured river martins were to be ringed and the white rump patch dyed with picric acid to enable subsequent recognition in the field. Guided by Pan and assisted by other villagers, the ACW team employed both trapping methods mentioned above. They concentrated their efforts on an island where all of Kittī's river martins had been captured. A total of eight trapping nights resulted in the capture of 525 birds, mainly Barn Swallows and Sand Martins (*Riparia riparia*), with incidental capture of Palla's Grasshopper Warbler (*Locustella certhiola*) and Plain Prinia (*Prinia subflava*). The throw net method of capture proved more efficient than the funnel trap method (Table 1). Three day-time searches of the reservoir on 24 November, 13 February and 15 February also failed to find any river martins, as did observations of swallows as they returned to roost approximately 15-20 minutes after sundown. Additionally, the Nakhon Sawan market was visited and two stalls were found which sold swallows, weavers and buntings as food; no river martins were discovered, but one merchant offered to "find" a river martin at a cost of 500 baht.

There has been one attempt to locate breeding river martins. Because the White-eyed River Martin's only close relative, *Pseudochelidon eurystomina* from Africa, nests in small holes which pocket sand bars along the Congo River, Kittī

Table 1. Capture results of funnel trap vs. throw net during the ACW study.

Date		No. of birds per capture attempt	
		Funnel Trap	Throw Net
January	13	17	
	15	36	
	16	25	
February	12	5	
	14	104*	
	15		143
March	5		43
	6		152
Total		187	338

\* On this occasion, mist nets were attached as 'arms' to either side of the funnel entrance to increase the catchment area.

searched the sand bars of three northern Thai rivers—the Wang, the Yom and the Nan—but did not find any river martins (THONGLONGYA, 1969). KING & KANWANICH (1978) hypothesized that if river martins do nest along these rivers, then March and April are the only available months because river levels begin to rise in May and cover most sandbars until January, when the birds are at Bung Boraphet. Still nothing is known about where the species breeds.

There have been numerous other attempts by amateur and professional ornithologists to see the White-eyed River Martin in the wild, but only two have been successful. The first was on 3 February 1977 by KING & KANWANICH (1978) who saw 6 adults flying over the reservoir at dusk. During 1979 a total of eleven birding groups, including the Bangkok Bird Club, searched unsuccessfully for the river martin in the lake. In January 1980, DR. DAVID OGLE (pers. comm.) saw 4 immature martins perched in a tree on an island.

## DISCUSSION AND RECOMMENDATIONS

Negative results from the ACW study and an absence of sightings since early 1980, despite numerous observational efforts, cast ominous doubts over the survival of the White-eyed River Martin. Perhaps an even more significant indicator is the status of Bung Boraphet's swallow population as a whole. Although no swallow census has ever been conducted, villagers claim that swallows numbered into the "hundreds of

thousands" roughly 15 years ago, and Pan asserts that there has been a drastic decline since the early 1970s. Comparison of Kitti's data with bird counts by ACW appears to support the villagers' claims. Of approximately 600 swallows banded by Kitti in 1968, roughly 5 percent were recaptured (McCLURE, 1969); the low return rate would indicate that these 600 birds were a very small portion of the entire swallow population at that time. In contrast, the ACW team, which counted swallows at dusk as they returned to roost in the reservoir's islands, recorded about 8000 birds as the highest count (in March). Because of the limited data, however, it is not clear whether the swallow population has actually been reduced to such a great degree or whether the disturbance has simply caused formerly large roosts to fragment and disperse. Assuming that the local population has been drastically lowered, the causative factors may not be readily apparent, though the villagers' trapping activities would have to be highly suspect, as would the annual destruction of roosting sites due to the burning of reeds to make way for lotus cultivation.

For future conservation efforts, we fully agree with the ACW (1981) recommendation to take five major courses of action. Of first importance is a concerted effort by the Wildlife Conservation Division of the Royal Forest Department to enforce the 1972 law against trapping hirundines (swallows) without a permit. Although the frequency of trapping has decreased noticeably since the WCD established a station at Bung Boraphet, surreptitious netting continues. Secondly, consideration should be given to Thailand's future ratification of the "Ramsar Convention" and designation of Bung Boraphet as a wetland of international importance.

Before further research is done, a vegetation survey should be conducted at Bung Boraphet and its satellite marshes to determine the extent and location of reed beds suitable for roosting swallows. When this is completed, attempts to locate river martins should be made through field observation rather than trapping, and concentrated from November to February. If the species' presence is verified, trapping should be considered only if it is deemed necessary to mark the birds in order to gather life history data. The primary method of capture should be the throw net as it is economical, safe, captures relatively large numbers of birds without excessive disturbance and can be used over a wide range of conditions. The final recommendation is that another attempt should be made during March and April to locate breeding birds along the Wang, Yom and Nan Rivers.

Bung Boraphet is one of Thailand's most important wetlands, harboring a myriad of waterbirds, fishes and other aquatic life. The activities of a large number of humans need not preclude the continued survival of wildlife, as the presence of some 30,000 ducks at the reservoir each winter (P.D. ROUND, pers. comm.) clearly illustrates. Although no one is about to sound the death knell for the White-eyed River Martin at

Bung Boraphet, it is apparent that strong enforcement of Thailand's wildlife laws is necessary to help the martin survive, and allow the swallow population as a whole to increase.

Protective measures should not rely solely on a military-like crackdown on villagers who have been harvesting these birds each winter for decades. Rather, enforcement might be easier if combined with other tactics such as provision of alternative employment, which could take advantage of the budding tourist interest in Bung Boraphet. Creative thinking combined with quick and forceful action represent the best hope for Thailand's "Princess Bird."

### ACKNOWLEDGEMENTS

This work was fully supported by Dr. Boonsong Lekagul, to whom we owe our deepest gratitude. We would like to thank Dr. Elliott McClure for his generosity in allowing us to publish some of the few photographic records of the "Princess bird". Mr. David S. Melville took all the photographs during the trapping attempt by the ACW group. He also cordially sketched the funnel trap setting. Miss Suthada Homjun typed the final manuscript. Finally, we would like to thank Dr. Warren Brockelman for carefully reading and correcting drafts of this report, but most of all for his unending encouragement.

### REFERENCES

- ASSOCIATION FOR THE CONSERVATION OF WILDLIFE (ACW) OF THAILAND. 1981. *A Search for the White-eyed River Martin, Pseudochelidon sirintarae, at Bung Boraphet, central Thailand*. Mimeo, 10 p.
- INTERNATIONAL COUNCIL FOR BIRD PRESERVATION (ICBP). 1981. ICBP world conservation priorities. ICBP Newsletter, Jan. 1981.
- INTERNATIONAL UNION FOR CONSERVATION OF NATURE (IUCN). 1979. *Conservation for Thailand - Policy Guidelines*. Vol. I, II, IUCN, Morges.
- INLAND FISHERIES DIVISION. 1973. *1972 Annual Report of the Fisheries Research Station (Bung Boraphet)*. Royal Thai Fisheries Dept., Bangkok (in Thai).
- KING, B. and S. KANWANICH. 1978. First wild sighting of the White-eyed River Martin, *Pseudochelidon sirintarae*. *Biol. Conserv.* 13: 183-185.
- KING, W.B. 1981. *Endangered Birds of the World: The ICBP Red Data Book*. Smithsonian Institution Press, Washington, D.C.
- MCCLURE, H.E. 1969. *Migratory Animals Pathological Survey Annual Progress Report 1968*. US Army Research and Development Group, San Francisco.
- THONGLONGYA, Kitt. 1968. A new martin of the genus *Pseudochelidon* from Thailand. *Thai Nat. Sci. Papers, Fauna Series No. 1*. Applied Scientific Research Corporation of Thailand, Bangkok.
- THONGLONGYA, Kitt. 1969. *Report on an expedition in Northern Thailand to look for breeding sites of Pseudochelidon sirintarae (21 May to 27 June 1969)*. Research Report, Applied Scientific Research Corporation of Thailand, Bangkok.
- WILDLIFE CONSERVATION DIVISION (no date). *The First 5-year Economic Plan (10 October 1979-30 September 1984) for Bung Boraphet Non-hunting Area, Nakhon Sawan Province*. Royal Thai Forest Department, Bangkok (in Thai).