Report on a Study Tour made to the Mekong Delta in Vietnam, 12-15 March 2012

Participants:

- Seng Kim Hout, WWT Project Manager
- Seng Vanna, Boeung Prek Lapouv LCG (joined on 12th March in Chau Doc until end of trip)
- Oung Seth, Anlung Pring LCG (only Phu My on 12th March)
- Bou Vorsak, Country Director BirdLife Cambodia and CEPF-RIT
- Khouth Karun, CIRD president
- Robert van Zalinge, WWT Technical Advisor

Hosts:

- Ms. Nghi, University of Can To student and translator for entire trip
- Mr. Van, Phu My project assistant (12th March)
- Mr. Ha Tri Cao, Phu My project coordinator (12th March)
- Mr. Nguyen Van Hung, Tram Chim director (13th and 14th March)
- Mr. Nguyen Hoang Minh Hai, Tram Chim scientific officer (14th March)
- Dr. Le Phat Quoi, Lecturer at Institute of Environment and Research, National University of Ho Chi Minh (15th March).

Report written by Robert van Zalinge and Seng Kim Hout. Photos by Robert van Zalinge unless other photographer mentioned.

Setting:

It is impossible to predict the future, but when looking across the border from Cambodia in to Vietnam it becomes clear that this is a potential scenario. Vietnam has an enormous population and population density is particularly high in the Mekong Delta, where the fertile floodplains of the Mekong have been all but converted for agriculture. Most of this is intensive rice production (the area is sometimes called the rice granary of the world) and people grow two to three crops a year. Few wetlands are left and the few that remain are often isolated, altered and heavily managed systems. On the more positive side, the Vietnamese government spends its own funds on managing protected areas by employing staff and creating the infrastructure needed (or at least what is considered necessary). In Vietnam there is also a good education system and some excellent researchers and academics that have studied their country's wetlands and have been providing advice to the government on how best to manage specific wetland areas. Following recommendations from Jack Tordoff (CEPF Grant Director) and Jonathan Eames (CEPF Indo-Burma RIT manager), as well as talks with the International Crane Foundation about their project in Phu My, WWT felt it would be beneficial to conduct a study tour to several wetlands in the Mekong Delta in Vietnam, with the participation of key people active in our own and related projects, and draw on the experiences of staff from NGOs, government and universities in Vietnam in order to improve our capacity further and that we may be better able to manage Boeung Prek Lapouv and Anlung Pring.

Study objectives:

Phu My:
- learn about habitat management and conservation effort at this site
- discuss movements of cranes between Phu My and Anlung Pring
- learn about Lepironia grass handcraft workshop developed by ICF as an example of sustainable financing

Tra Su:
- observe the site and it's importance as a roost for birds from Boeung Prek Lapouv
- discuss management of the site with staff and get a feeling for the long term future as roost site for birds in BPL
- understand why this site is so popular with roosting birds

Tram Chim:
- learn about water and habitat management at Tram Chim
- learn about mimosa control at Tram Chim
- learn about agriculture, impacts and management of threats at Tram Chim
- discuss crane numbers, seasonality and movements

Summarised itinerary:

Monday, 12th March – Travel to Phu My. Visit wetland and handcraft workshop. Discussion with Mr. Van. Visit local mat-weaving family. On to Chau Doc town in the evening.

Tuesday, 13th March – Boat tour of Tra Su, including visit to heron and egret breeding colony. Discussion with Tra Su staff. Travel to Tram Chim. Dinner with Mr. Hung.

Wednesday, 14th March – Boat tour of Tram Chim (compartment A1) with Mr. Hai. Discussion with Mr. Hung and Mr. Hai after lunch. In the evening one group (Kim Hout and Vanna) departs for Chau Doc, while another (Vorsak, Karun and Robert) departs for Ho Chi Minh City.

Thursday, 15th March – Kim Hout and Vanna travel from Chau Doc to Cambodia. Vorsak and Karun travel from Ho Chi Minh City to Cambodia. Robert meets with Dr. Le Phat Quoi in HCMC. End of study tour.

Note on sharing of trip expenses and changes in planned itinerary:

Food and accomodation was covered by each participant's organisation (e.g. WWT only covered food and accomodation for Seng Vanna, Seng Kim Hout and Robert van Zalinge). WWT covered transport for all participants except Vorsak from BirdLife Cambodia who paid for his share of the vehicle hire. Vorsak also contributed to certain activity costs, paying the fee for a guide in Tram Chim and paying part (one third) of the costs for hiring a translator.

On the evening of the 14th, Kim Hout and Vanna returned to Chau Doc with the hired car, rather than waiting for the next morning. This reduced the total days of car hire to three instead of four. Robert, Vorsak and Karun traveled to Ho Chi Minh City from Tram Chim by public transport.

Phu My Lepironia Grassland Conservation Project

Wetland conservation:

Phu My was first discovered to be an important crane feeding site in 1998. In 2004 the International Crane Foundation (ICF) started the Phu My Lepironia Grassland Conservation Project.

Now an embankment separates the wetland from a two thousand hectare commercial intensive shrimp farm owned by a single company. The company built the embankment. From the embankment we had a good overview of the grasslands, ricefields and melaleuca stands that comprise the wetland, although we could not see all the way to the far side where the handcraft workshop and project offices are located. Kim Hout counted around eighty Sarus Cranes feeding in the grasslands. We were told by Van that the majority of birds that feed here roost in Anlung Pring. They do not feed on the *Lepironia* grass, but select the *Eleocharis* growing in between. It is ICF's belief that by conserving this wetland and adding value to the traditional use of *Lepironia* they will also be able to better conserve the *Eleocharis* for the cranes.

The sluice gate we saw on the boundary between the reserve and the shrimp farm is controlled by the company, but according to Van, they only infrequently open it (I believe once a year in the flood season) to wash out all the accumulated toxins from the farm. The embankment itself and the farm being downstream of the reserve apparently keep impacts from the farm on the wetland low. The water in the wetland is fresh, but the soils can be highly acidic in some places.

Although the shrimp farm boundary is clear, ownership within the wetland is not. The project had proposed a 1,000 hectare protected area to the provincial government, but there are several people in the local community that have disputed the boundaries of the reserve, claiming ownership of around 30 hectares of land inside and a company has already received a lease for a melaleuca plantation of around 200 hectares. It is not known how and when these issues will be resolved, but Vang is hopeful that a provincial reserve will be created by next year.

Local people also have shrimp farms, but in a different area (other side of the reserve) and expansion of shrimp farms is a large threat. It is important for Phu My to receive official protection and for local people to receive as much benefit as possible from the Lepironia handcraft business.

Not only cranes but also people move between Anlung Pring and Phu My. Villagers from near the border travel to Phu My for a few days to collect Lepironia grass which they then transport back across the border. On the other hand, much of the local population around Phu My, which themselves are around 95% of Khmer ethnicity, produce mats from Lepironia that are then sold to Cambodians (if not to ICF). According to one woman, a mat of around 1.4 x 2 m sells for around 35,000 Vietnamese Dong (around US$1.50).

Such linkages in terms of use, by cranes and people, call for the further development of cross border collaboration and synchronization in the management of the two sites.

Phu My grassland on one side, Shrimp farm on the other

Sluice gate and embankments with divider channel between grassland and shrimp farm (note: grey shapes in grassland beyond embankment are Sarus Cranes)

Handcraft business:

The handcraft business started in earnest in 2007. Using the traditionally woven mats as raw material ICF designs and produces baskets, various office paraphernalia, hand bags, hats, sleeping mats, *etc*. For many designs Lepironia stems are dyed in various colours. These are then distributed to a large pool of home-based weavers through four families that act as intermediaries, accepting orders from ICF and ensuring delivery of the woven mats to the workshop. When the mats have been woven they are tailored at the workshop in to the various products by a group of ten women on average that have been trained by ICF. The number of workers fluctuates slightly depending on number of orders. Van informed us that 447 households participate in the process, as Lepironia collectors, mat weavers, intermediaries and those directly employed.

The products are then sold to distributors based in Ho Chi Minh City that export to around twelve different countries, with the USA being the biggest market. The market is a limiting factor at the moment and ICF wants to increase the market and revenue derived from sales by establishing their own direct links with overseas retailers/buyers. From previous information obtained before the study tour ICF reported that the business is almost self sufficient (around 80%), including funding staff that conduct ecological monitoring in the reserve. ICF invested around US$ 500,000 since 2004 in setting up and running the business. According to Van, when Phu My becomes a provincial protected area, the handcraft business will also be run by the government, with support from ICF and the same involvement of local communities.

Collection of Lepironia is done by pulling out the stem. ICF requires long stems (I believe over one meter long) for their products. A lot of people do not select Lepironia using the ICF criteria (personal comment: reason is unknown, could be either because they do not know, or require money immediately, or perhaps feel that if they do not collect the plant now then someone else will). Such stems and mats woven from these smaller stems are sold locally and to Cambodia.

Lepironia

Cambodian man transporting Lepironia

Local woman of Khmer ethnicity weaving a Lepironia mat

Page from ICF's Lepironia catalogue showing a part of the range of products for sale

Considerations/Lessons learnt from the visit to Phu My:

1) Considering the movement of both cranes and people between the two sites there should be close communication and collaborative projects that ensures managers can work together on cross-border issues.

2) The handcraft workshop could be replicated in Cambodia to include those people that cross the border to collect Lepironia in Phu My. This would include them in the conservation initiative and increase their monetary benefit. However, there is no source of Lepironia in Cambodia so success will depend on continued free access to the resource in Vietnam.

3) It is unsure what will happen when the Vietnamese government takes over management of Phu My. Will they continue to allow people (and Cambodians) to harvest Lepironia from the reserve? Will they run the handcraft workshop as before and collaborate with a similar initiative in Cambodia?

4) A question formed later, that is still unanswered. Does the need for long stems in the production of handcrafts not conflict with the preference of cranes to feed in short vegetation?

Tra Su Melaleuca Forest

Melaleuca planting began in 1983. The soils are highly acidic causing problems for the proper cultivation of melaleuca and high numbers of birds started roosting and breeding in the trees, so that the government decided to protect it (I think this was with support from Hanno Stamm of the Victoria Chau Doc hotel). The total area now is 845 hectares and is a provincial forest reserve. To protect the melaleuca from fire an embankment was built around the reserve and water levels kept artificially high. Further channels and embankments divide the reserve in to six main compartments for water level management purposes, although each compartment is divided in to two equally sized sub-compartments. Compartments are drained every three years, otherwise they are permanently water logged. The area receives much flood water in the wet season.

Oriental Darters, cormorants, herons and egrets breed in the dense melaleuca forests. It also serves as a roost for many species of waterbird, including Asian Openbills. The dense forests and protected access probably explain why Tra Su is so popular with birds in an otherwise largely treeless landscape. Of course, the proximity of Boeung Prek Lapouv provides an important food source.

It is possible to take a small paddle boat along a channel into the heronry. A larger boat transports tourists along the main channel to a 23 meter high observation tower in the center of the reserve and back along other perimeter channels. There around 70 bird and 11 mammal species in the reserve. There is no monitoring program and number of birds breeding in Tra Su is unknown. Over eight thousand tourists arrived last year (paying around $US 2.50 each for access by boat). It was said that around 45% of tourists are from within the province and around 20% are foreigners.

Above: closed canopy of Tra Su as seen from the tower. Below: inside Tra Su forest (photo by Bou Vorsak)

Left: long fibreglass boat with six passenger seats for up to twelve adults

Above: long boat includes a foldable back rest, practical! (photo Seng Kim Hout)

Right: small fibreglass paddle boats used for accessing smaller channels, shallow and stable!

Tower at Tra Su
(photo by Seng Kim Hout)

Considerations/Lessons learnt from the visit to Tra Su:

1) It is clear that the dense forest stand with restricted access for people is the attraction for waterbirds to roost and nest in Tra Su. There is currently no forest area like that in BPL and it will be difficult to create, considering we want to focus on cranes and a roost/breeding site requires stronger protection than BPL can afford at the moment. The birds are not attracted to melaleuca specifically. Any medium to tall trees will work for them.

2) We were impressed with the tower in the centre of the reserve, although a tower in BPL would not have to be as high probably (just enough to oversee the main wetland area). We also liked the

boats and would recommend a similar design to the long boat for any future boat purchase in BPL, although perhaps slightly smaller. The small paddle boats seem highly suitable to bring tourists out on the wetland in Anlung Pring. We therefore recommend Mlup Baitong to consider using boats of similar design.

Tram Chim National Park

Tram Chim is one of the last remnants of the once vast Plain of Reeds wetland ecosystem, which previously covered some 700,000 ha of the Mekong Delta in southwestern Vietnam. The park (7,313 ha) was officially established in 1998 and is currently split in to five zones. There was mention of a 20,000 hectares buffer zone around the park, but this seems to be outside the management purview of park staff. It is all rice cultivation and settlements. The five zones are managed for different purposes. A1 is managed to maintain a high biodiversity, A2 is managed for healthy melaleuca forest and A3-A5 are managed for *Eleocharis* sp. (especially *Eleocharis atropurpurea*). In January 2012 Tram Chim became a Ramsar site.

In 2001 embankments were built around Tram Chim and these were raised later around A1 (and A2?) for further water storage and fire prevention in melaleuca stands. Other positives mentioned about building dykes around the reserve were the establishment of a protective perimeter, reducing land encroachment, unauthorized entry and inflow of toxic chemicals from agricultural in the surrounding areas. Around two million US$ was spent by the provincial government on constructing the embankments. Maintaining high water levels has had a negative impact on the original vegetation communities the park was meant to conserve. The embankments have also resulted in a decline in fish stocks in the park. Mr. Hung believes the outer embankment (at least around A1) is too high and would like to see spillways built to allow more connectivity, and more fish to enter the reserve in the flood season. The sluice gates are kept open in the flood season, but this is not enough. Flooding in Tram Chim is around two meters deep.

In order to revive the original vegetation of Tram Chim, while still allowing for the government's objectives concerning melaleuca forests, in 2005 the Mekong Wetland Biodiversity Conservation and Sustainable Use Program (IUCN/ICF/WWF) initiated a 18 month study and recommended an integrated fire and water management strategy which specifies monthly target water levels for each zone in the park that are based on the needs of the main vegetation communities. This strategy was implemented by the program in 2006 and 2007 and later WWF continued supporting Tram Chim in its implementation and in conducting further studies and conservation activities from 2008-2011.

Park staff now have a timetable of water level targets for each zone that they can achieve through operation of the sluice gates. Sluice gates in Tram Chim have a series of wooden balks blocking water flow and staff can easily remove the required number of balks to reach a certain water level. Further improvements were made by the WWF project by, in two critical areas, removing a section of an inner embankment in zone A1. This increased water circulation and made significant improvements to water quality, vegetation health and abundance of waterbirds in previously affected areas. Two cranes were seen in this area and later five cranes were seen in another section of zone A1. Sarus Cranes had declined dramatically after the embankment had been created, but now numbers are increasing gradually. It was estimated by Mr. Hung that there were around 50 cranes in Tram Chim at the moment and more cranes would arrive later in March and April.

Melaleuca now covers approximately three thousand hectares (slightly less than half of the reserve). This was only around three hundred hectares in 1998. As this is one of the government's objectives for Tram Chim this is considered a success. However, the study team felt that the phenomenal expansion of melaleuca has been achieved at the expense of the much more biologically diverse grass and sedge communities.

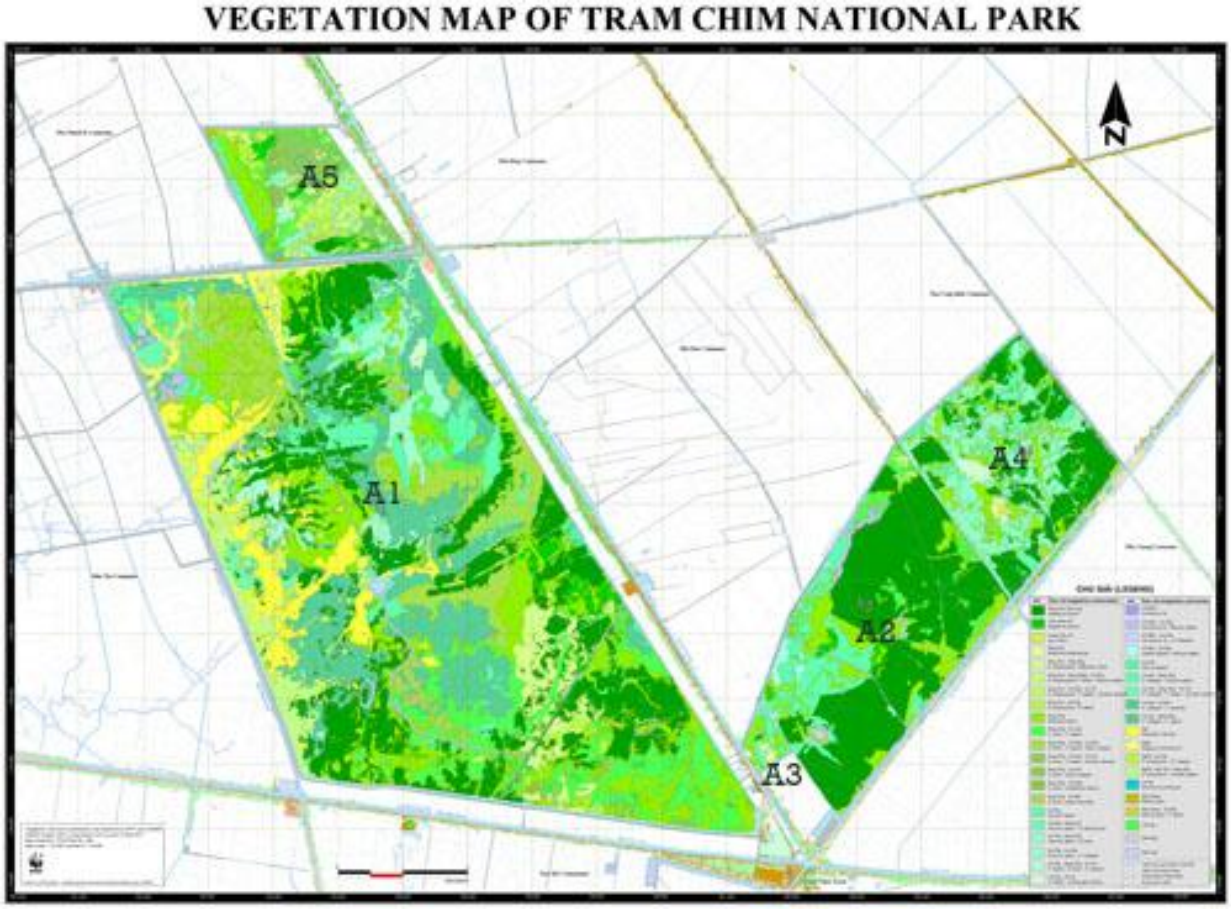
Mimosa pigra control seems to have been effective at Tram Chim. Although it is difficult to estimate how much mimosa there was and currently is as the infestations may sometimes be small and scattered, it is generally agreed that the plant has declined in the park. A combination of fire, manual cutting (especially before flooding), digging up whole plants, and even chemical applications have been used as control methods. Mr. Hai considers that apart from the currently applied method of cutting in the period immediately prior to the flood season, controlled burns can be useful as well as the new plants can be very easily uprooted by hand and it reduces the seed bank (the latter is perhaps less true for BPL where there may be a larger continuous influx of new seed). In any case Mr. Hai expressed that fire can be an appropriate habitat management tool and that it should not be avoided due to concerns about mimosa infestation as long as the burnt area is monitored and mimosa seedlings are removed.

Mr. Hai also mentioned that fire helps growth of *Eleocharis* sp., including tuber growth and expansion in area covered. *Eleocharis atropurpurea* also needs two to three months of dry soil conditions for optimal tuber formation, but normally no longer than three months with the main criteria being that only the top 50 cm of soil is not wet/saturated (information from Mr. Le Phat Quoi on 15/3/12). There is currently around 800 hectares of *Eleocharis* sp. in the park.

Within the Tram Chim national park core area there are 20 ranger sub-stations with at least 2 rangers based in each sub-station. With this enforcement staff capacity, Tram Chim is able to conduct law enforcement more effectively (extract from Bou Vorsak's report on the study tour).

Surrounding the park there are at least fifty thousand people (10-15% considered very poor). Each year the park provides around 40-50 permits to the very poor to collect natural resources (fish and other similar aquatic animals, aquatic vegetation, melaleuca firewood). The people's committees (sort of commune council in Vietnam) in each of the six communes around the park choose the people that should receive a permit. Each community group is able to collect these resources in their own designated area of 150 hectares. The resource extractors have to follow criteria for sustainable use such as the kind of fishing gear that can be used, as well as quantity of fish, firewood and other resources allowed to be collected per day. The local people who receive a permit have to show this to the rangers in each sub-station before going to collect natural resources and upon return rangers also check their collected products. The park estimates that a person given a permit avoids spending around US$ 3-4 per day on having to purchase such goods (paragraph adapted from that written in Bou Vorsak's study tour report).

Without much in the way of advertising, the number of tourists has increased rapidly at Tram Chim from less than one thousand per year in 2009 to over six thousand in 2011. Mr. Hung hopes that with the support of WWF they will develop an ecotourism plan in future.



Map showing main sectors. The two darkest greens are melaleuca forests. Source: Evaluation of management approaches at Tram Chim National Park (2006-2011). Draft report by Le Phat Quoi. WWF, Hanoi.

Hai (second from left) explaining his work to participants

Hai showing Robert and Nghi a sluice gate

View from top of tower over central Tram Chim (all photos by Seng Kim Hout)

Team with hosts at Tram Chim (from left to right: Seng Kim Hout, Nguyen Hoang Minh Hai, Bou Vorsak, Nguyen Van Hung, Khouth Karun, Robert van Zalinge, Seng Vanna). Photo credit: Bou Vorsak.

Considerations/Lessons learnt from the visit to Tram Chim:

1) It is important for us to do a careful study of hydrology and have clear management objectives before building infrastructure to manage water levels. The building of an embankment around Tram Chim seems to have had more negative ecological impacts than positives and this costs a lot of money as well.

2) A balance needs to be found in water levels for optimal Eleocharis growth. The current situation in BPL seems to dry (surface and ground water levels need to be monitored), yet in Tram Chim it is largely too wet. The report mentions requirements for Eleocharis.

3) Fire has not yet been used as a habitat management tool in Boeung Prek Lapouv and we should consider the careful application of fire for habitat restoration in certain areas.

4) Similar boat tours to those in Tram Chim can be organized to promote tourism in BPL. A central tower and boats similar to those described in the Tra Su section will be necessary. We may want to have communities strongly involved in any ecotourism initiative in BPL.

5) We should consider issuing a limited number of permits to the poorest people from local communities for harvesting resources in the BPL core zone similar to the way it is done in Tram Chim.

On the 15th Robert met with Dr. Le Phat Quoi in Ho Chi Minh City. This meeting was arranged by Kevin Marks of WWF Vietnam. Dr. Quoi worked first on the Mekong Wetland Biodiversity Program in Tram Chim (2003-2006) and later continued follow up activities together with WWF (2008-2011). He was instrumental in developing the integrated fire and water management strategy and monitoring its implementation.

Some of the points discussed are summarised below:

- Water levels were being kept too high for proper growth of *Eleocharis* sp. in Tram Chim. The MWBP project developed a timetable of recommended water levels for in the various management zones.
- To understand hydrology, many elevation points were taken from around the reserve and modelled to obtain a detailed map of elevation
- Vegetation was mapped using SPOT imagery
- To monitor water levels, aside from the water level markers at sluice gates, 16 ground water monitoring points were established where water levels are measured every 15 days. These are plastic tubes, open at the bottom and with a sealed cap on top. Water depth is measured with a simple handheld tape measure. At these points data is also collected on certain water quality parameters (e.g. pH, EC, DO), vegetation composition and the biodiversity index.
- *Eleocharis atropurpurea* is the preferred food of cranes in Tram Chim followed by *Eleocharis dulchis* that is standing dry. They do not feed in *Eleocharis dulchis* that is inundated.
- *Eleocharis atropurpurea* should have two to three months of dry conditions for tuber growth. In these months the groundwater level should not drop below 50 cm as then it becomes too dry.
- pH levels of 3-3.5 are best for *Eleocharis atropurpurea* with a maximum of 4. *Eleocharis dulchis* grows best between pH 4-4.5.

END OF TRIP REPORT