

The Ecology and Conservation of Large Waterbirds in Southeast Asia



GOAL

- **IDENTIFY THE CHARACTERISTIC ECOLOGY OF 3 REPRESENTATIVE SPECIES OF LARGE WATERBIRDS IN RELATION TO WETLANDS OF SOUTHEAST ASIA**

THREE PRIMARY DATA SOURCES:

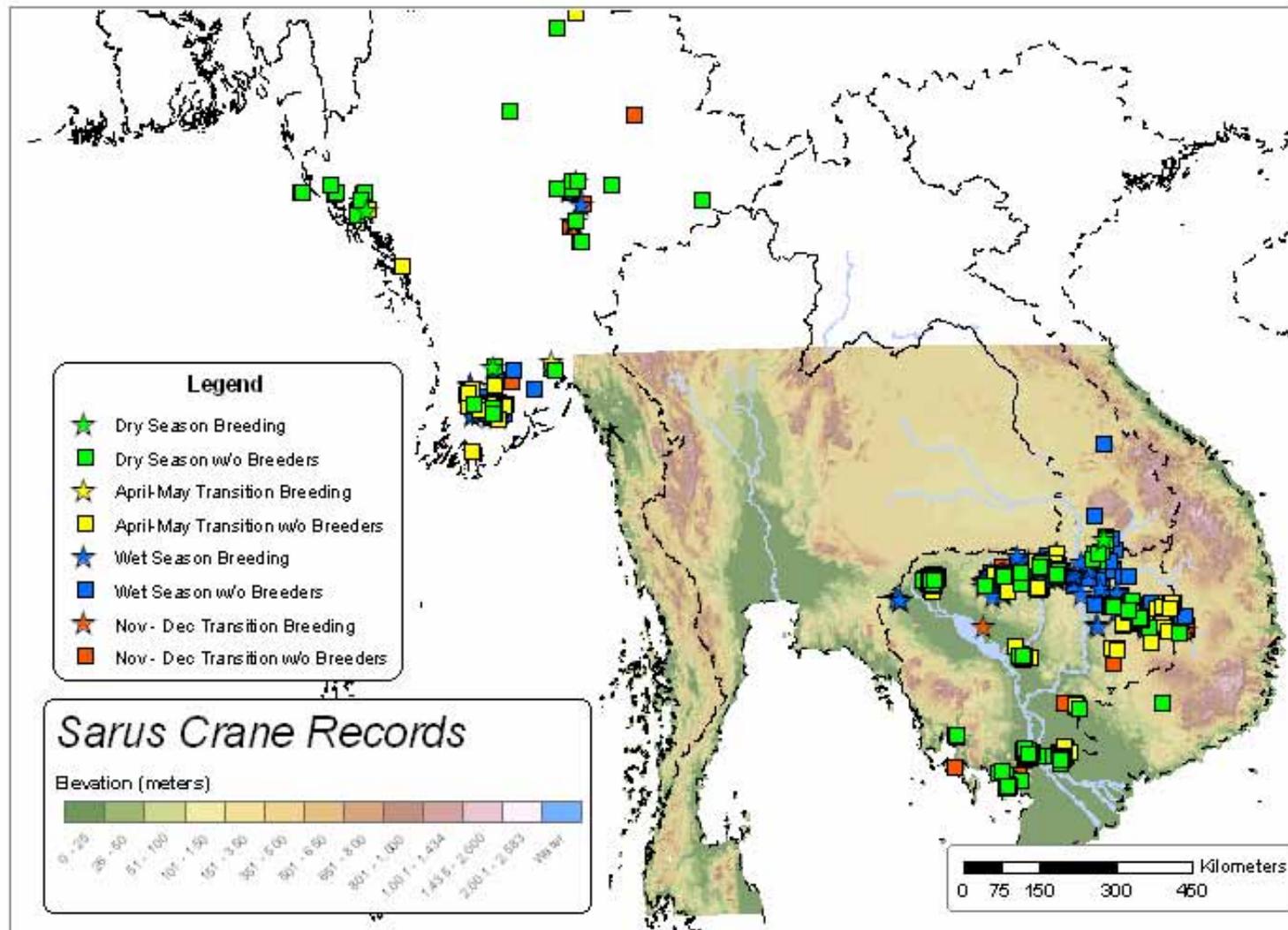
- **COLLECTED OBSERVATIONS (OVER 20 YEARS)**
- **RAINY SEASON AERIAL SURVEY IN August, 2001**
- **PTT DATA FROM 5 BREEDING PAIRS AND 2 IMMATURE BIRDS**

EASTERN SARUS CRANE: A BIRD OF BOTH DELTA AND SMALL WETLAND SYSTEMS



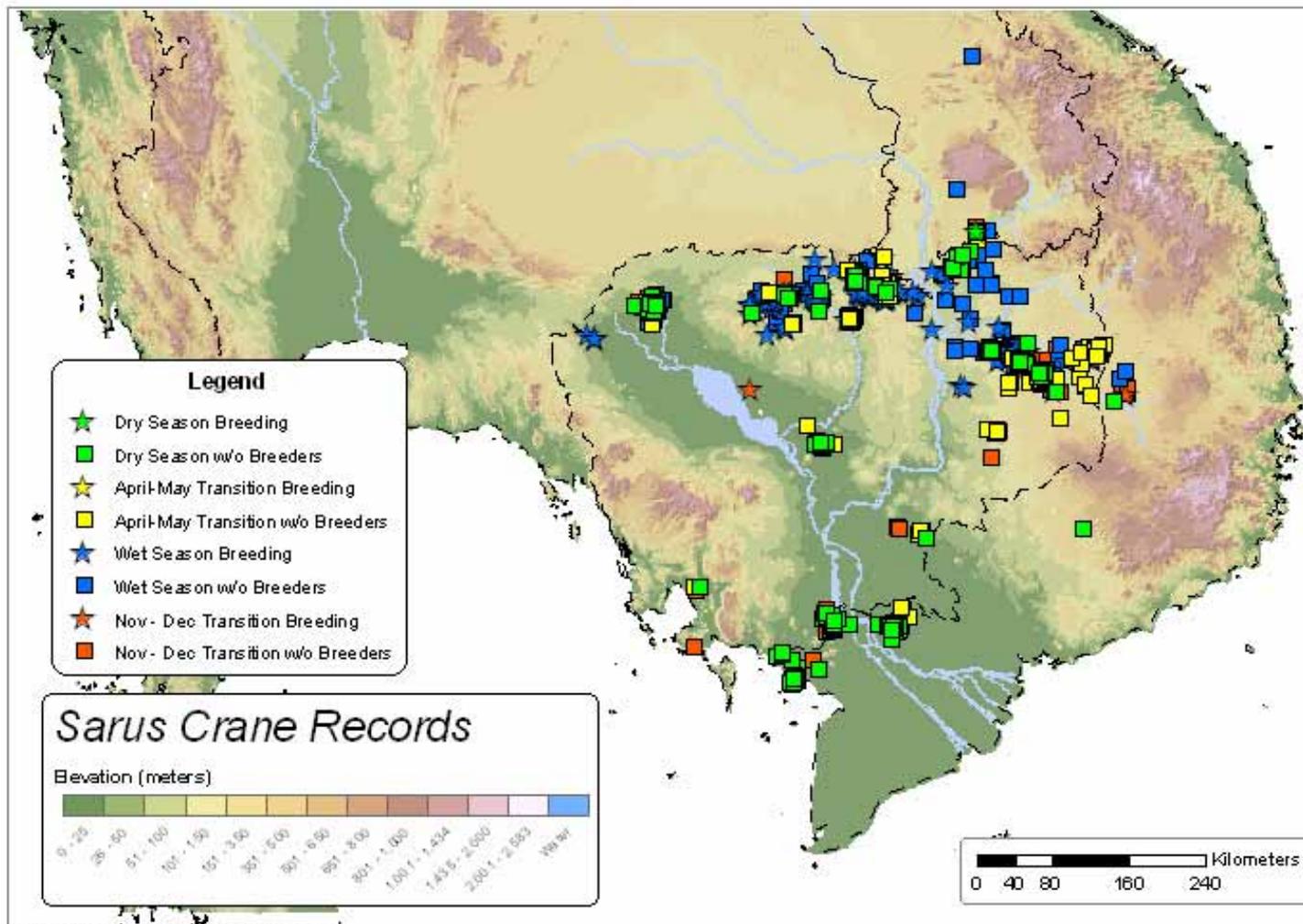
Doan Hong

Two Populations of Eastern Sarus Crane



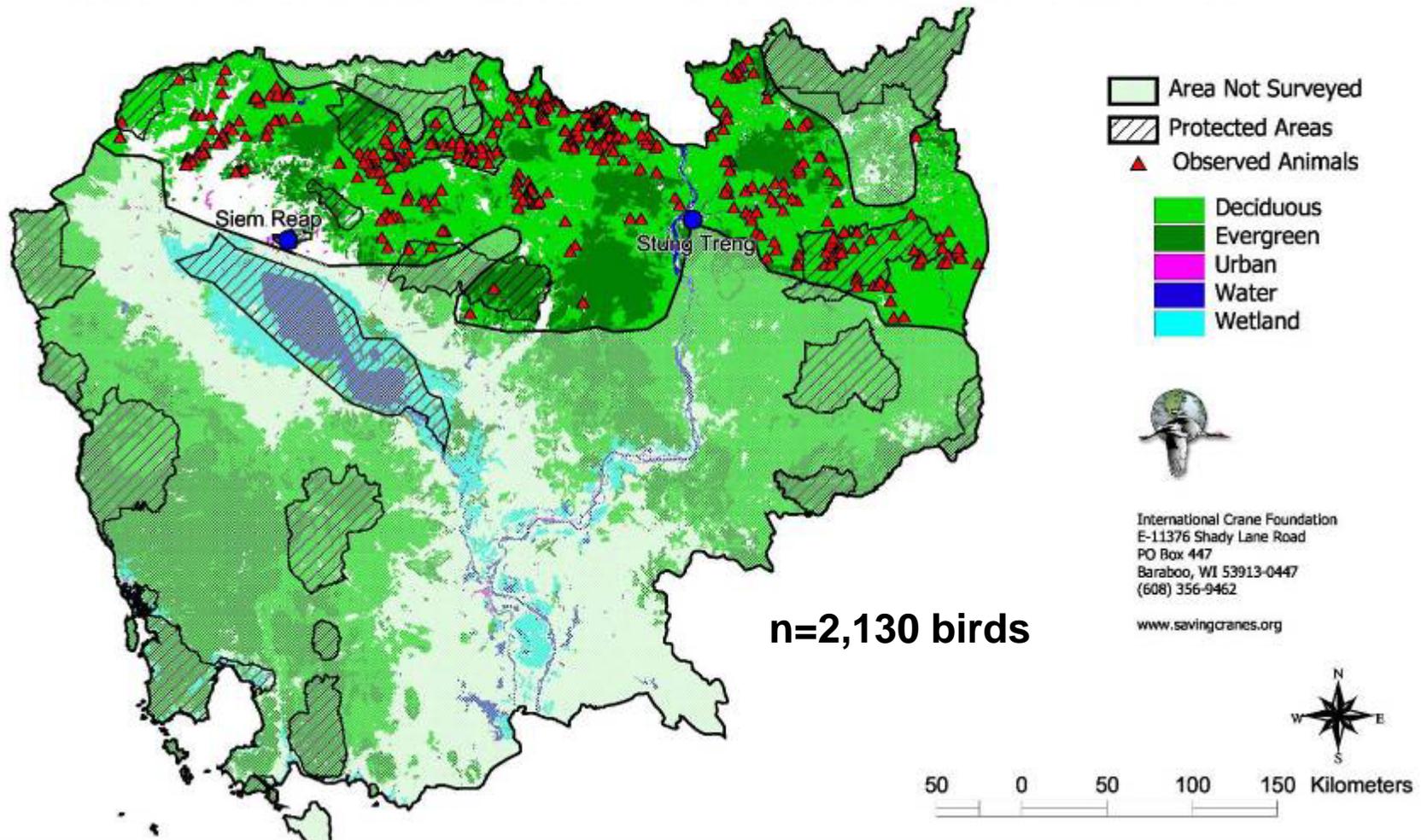
Map by the International Crane Foundation 2007

Known Range of Southeast Asia Population of Eastern Sarus Crane

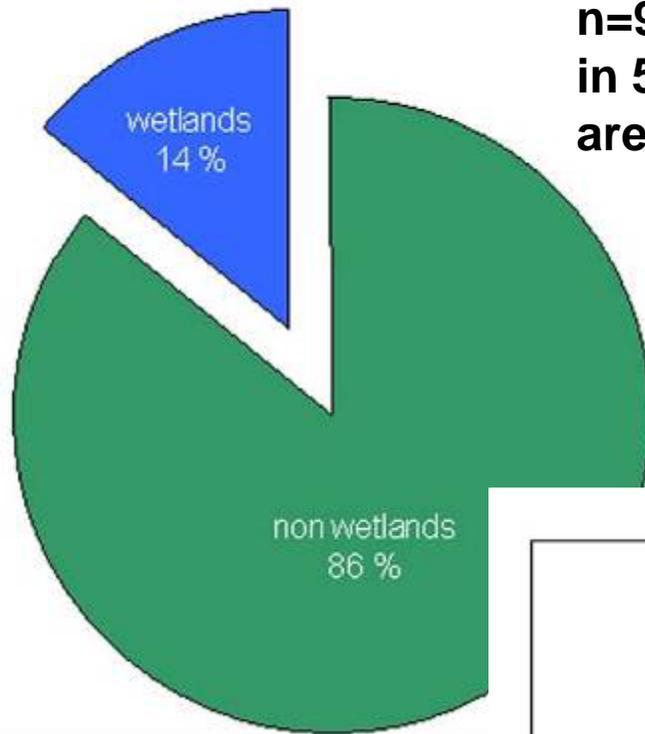


Is the Creation of Protected Areas Enough?

Protected Areas of Cambodia in Relation to Animals Found



Percent of Area Flown (Wetlands vs. Non Wetlands)

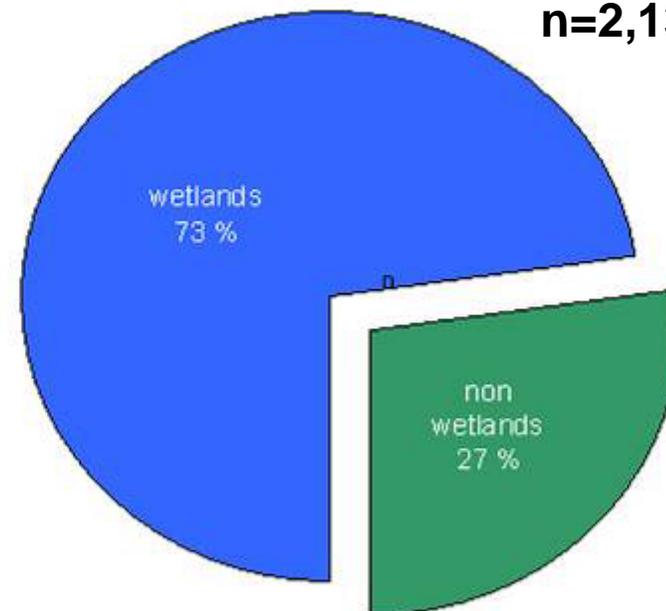


n=9,318 wetlands
in 5,271,317 ha of
area searched

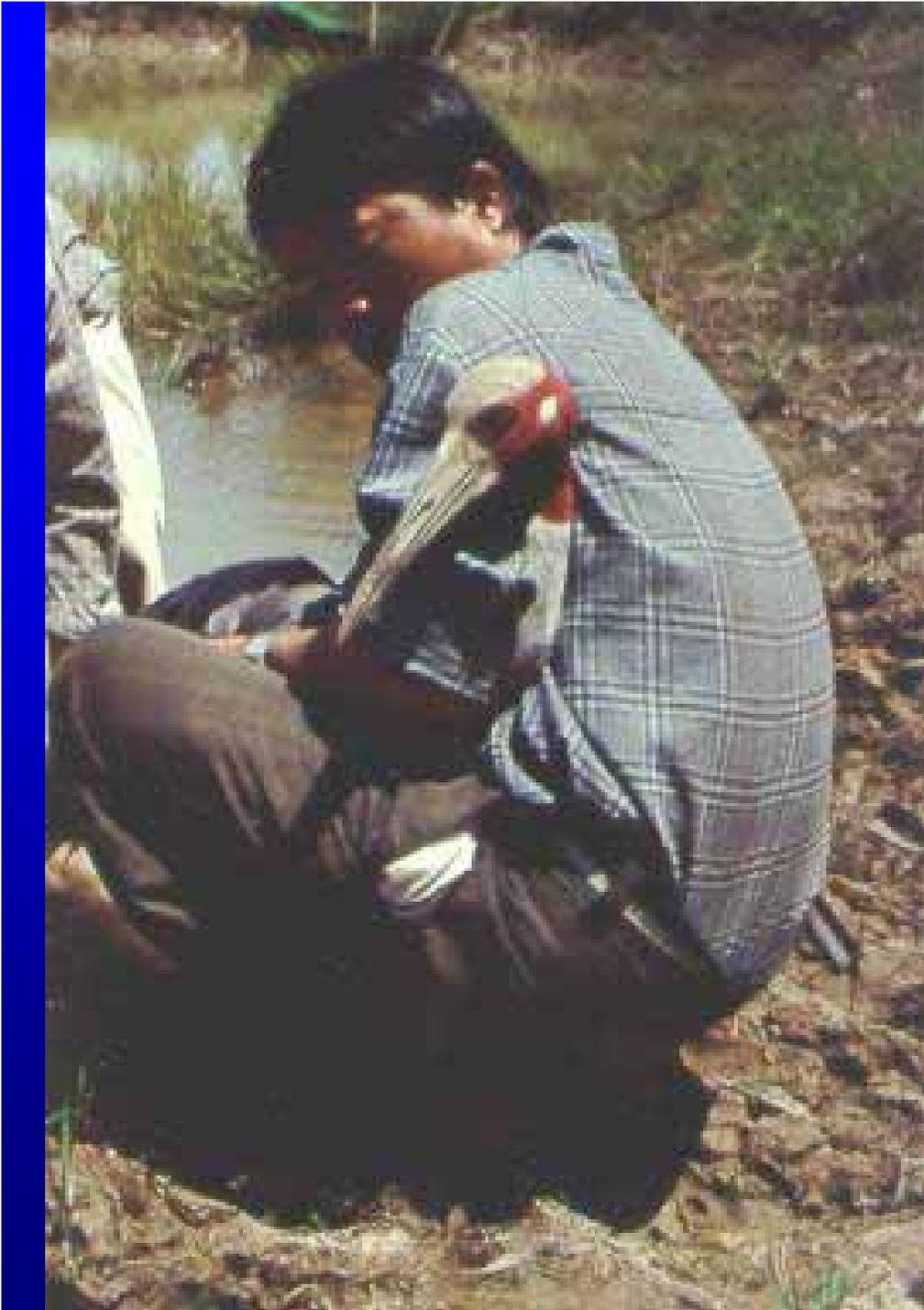
**THOUGH
WETLANDS
ARE
RELATIVELY
RARE**

**MOST BIRDS
WERE SEEN
IN
WETLANDS**

Percent of Birds Observed (Wetlands vs. Non Wetlands)



n=2,130 birds



**Nguyen Van Hung
With Adult Male
Sarus.
PTT Attached
March, 1998**

1998-1999

2001-2002

Ad. Male

Ad. Fem.

Ad. Female | Pr.

SY Chick

Ad. Female (Pr.)

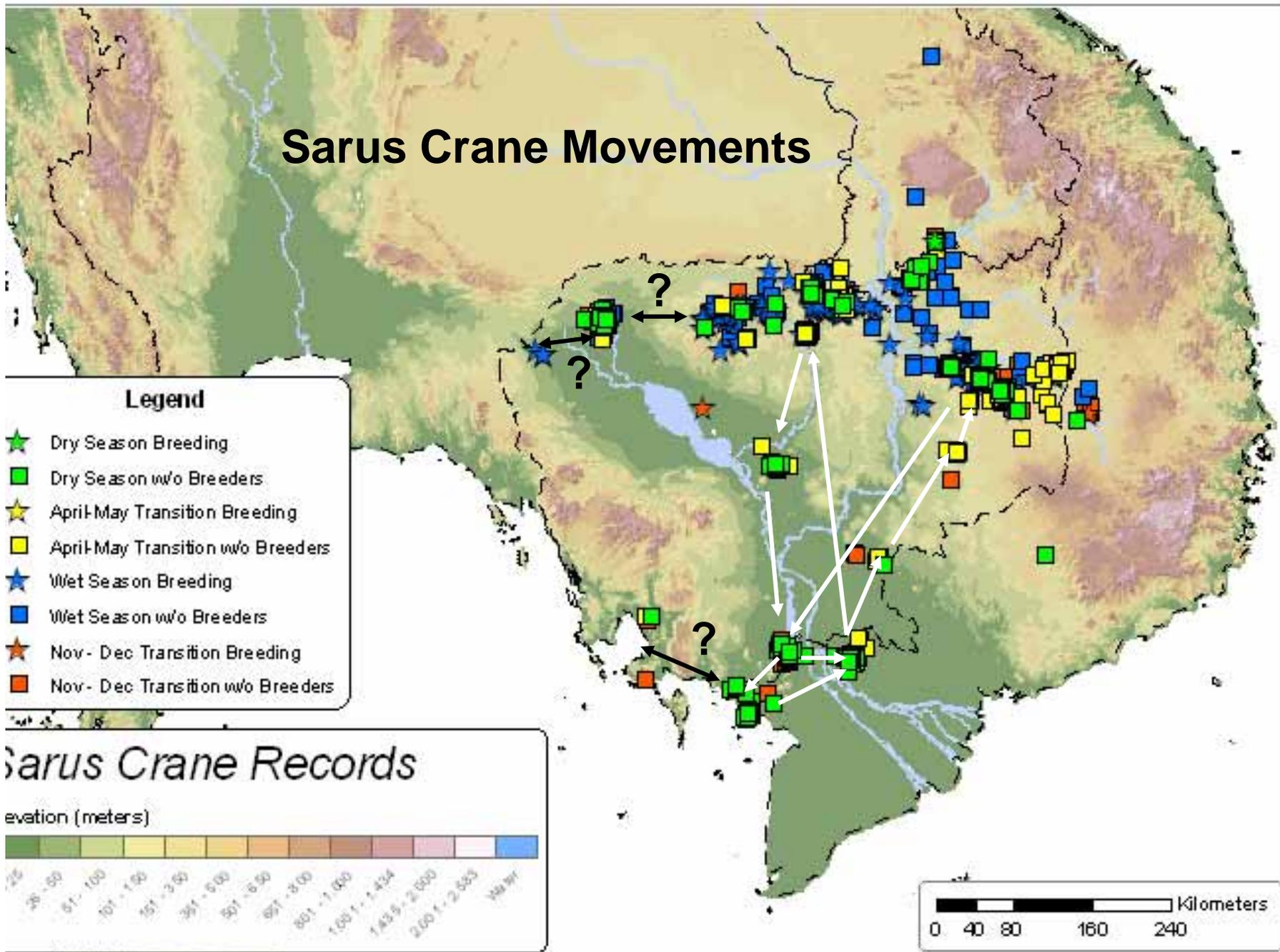
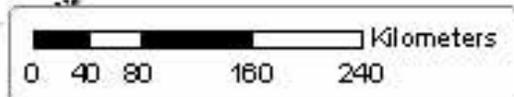
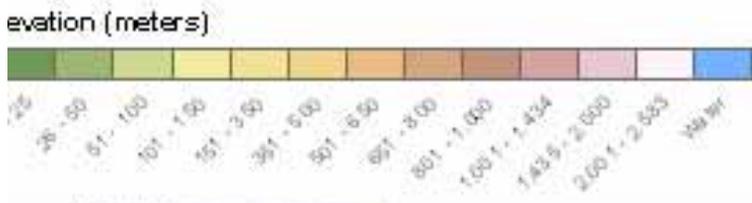
SY Chick

Ad. Male (with 2 chicks)

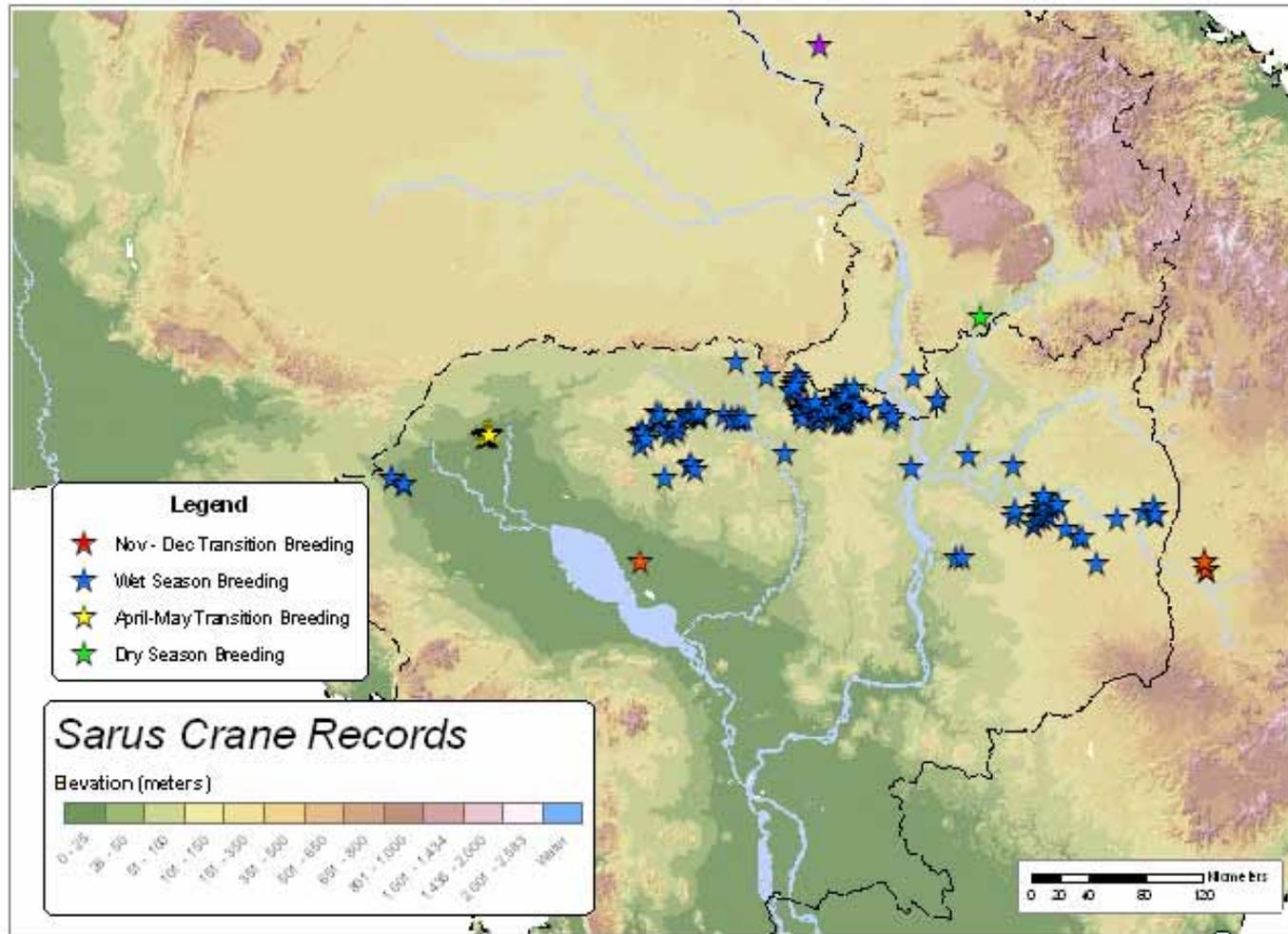
Sarus Crane Movements

- Legend**
- ★ Dry Season Breeding
 - Dry Season w/o Breeders
 - ★ April-May Transition Breeding
 - April-May Transition w/o Breeders
 - ★ Wet Season Breeding
 - Wet Season w/o Breeders
 - ★ Nov- Dec Transition Breeding
 - Nov- Dec Transition w/o Breeders

Sarus Crane Records



CRANE BREEDING LOCATIONS IN RELATION TO ELEVATION/OPEN FOREST (75-150 MASL)



EXAMPLES OF CRANE NESTS IN SHALLOW, EMERGENT WETLANDS





**THESE WETLANDS ARE WIDELY
SCATTERED WITHIN THE OPEN FOREST**

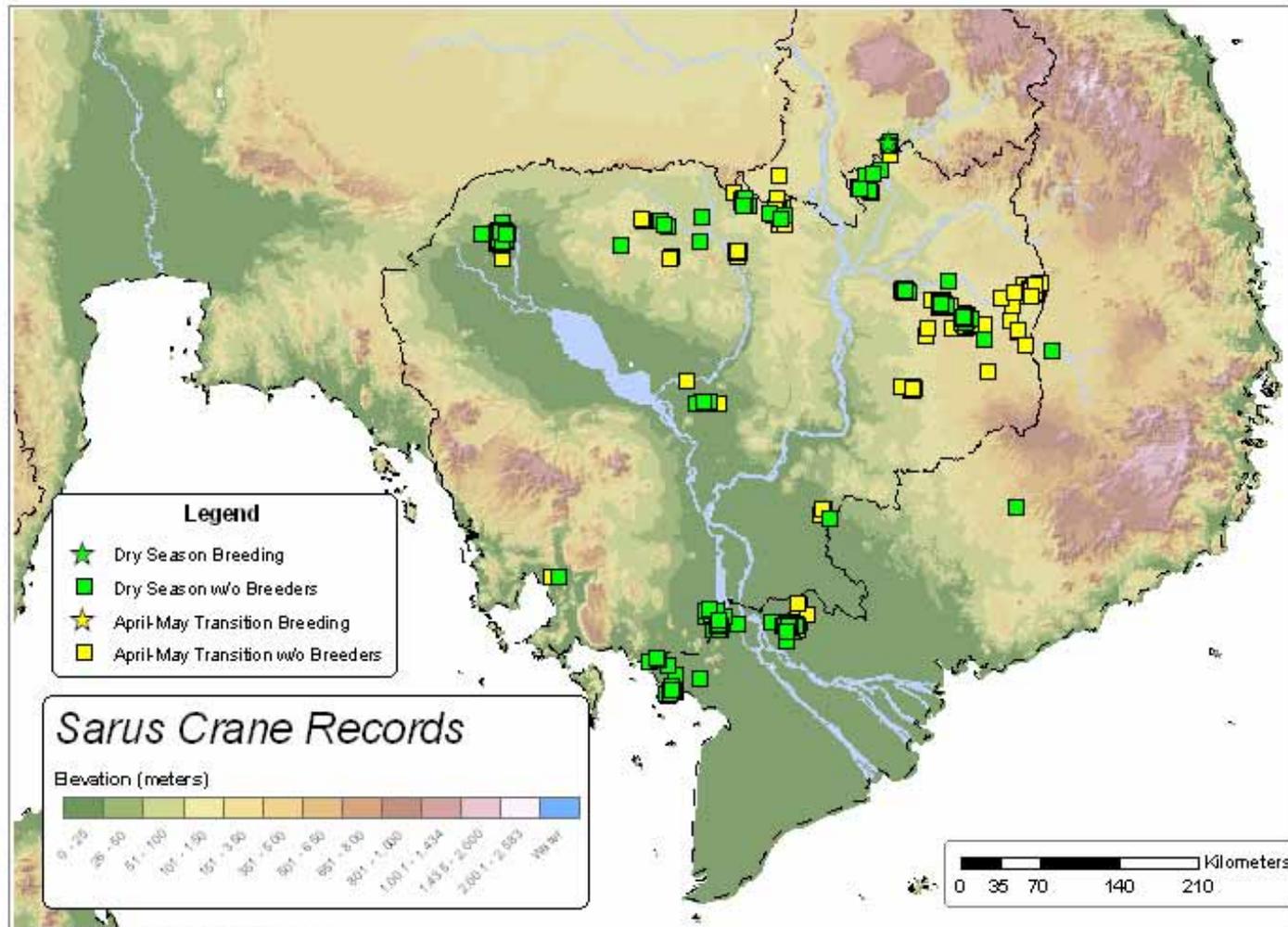


The Open Forest Ecosystem is Key

(It is Found at Elevations of 75-150 MASL)



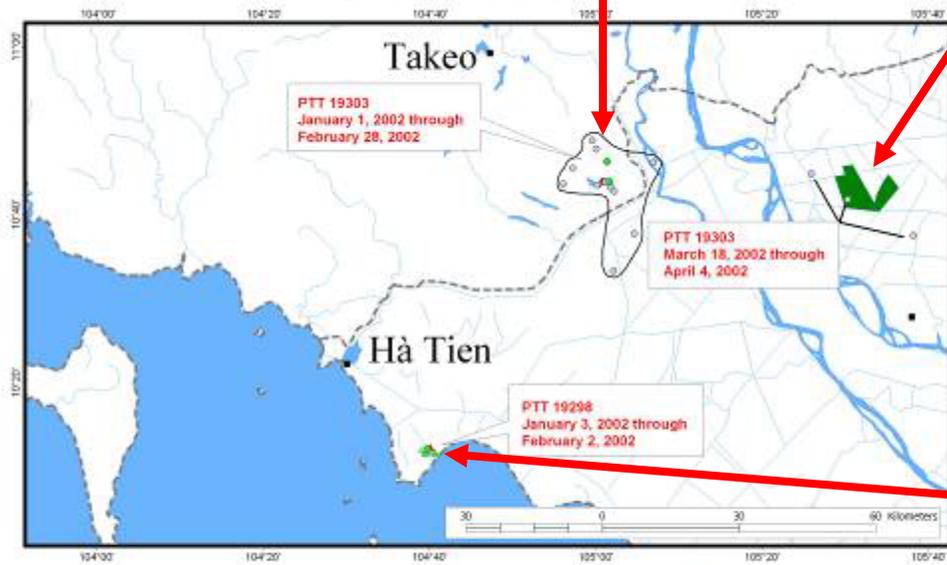
CRANE NON-BREEDING LOCATIONS IN RELATION TO ELEVATION (5-25 MASL)



Map by the International Crane Foundation 2007



PTT Data of Cranes Captured at Tram Chim
January 2002 - April 2002

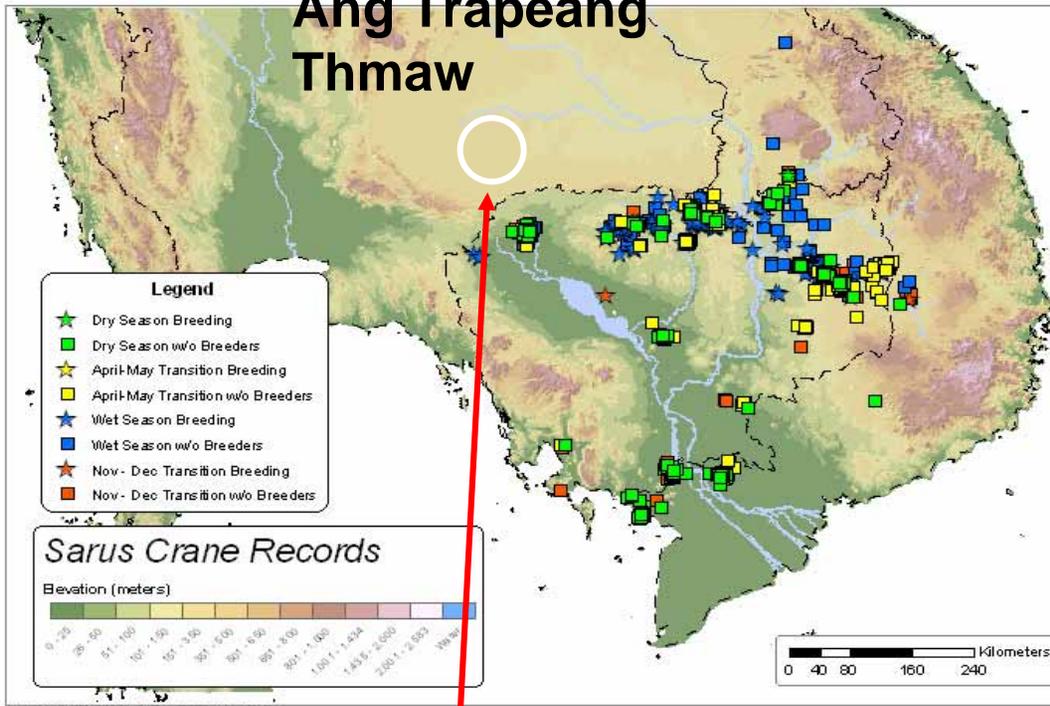


19303	19275	19298	Signal Quality	Tram Chim Reserve
●	■	▲	3 High	●
○	□	△	2 Medium	—
◇	▣	▽	1 Low	—
				—
				—



International Crane Foundation

Ang Trapeang Thmaw



Deltaic Wetlands in Northwestern Cambodia

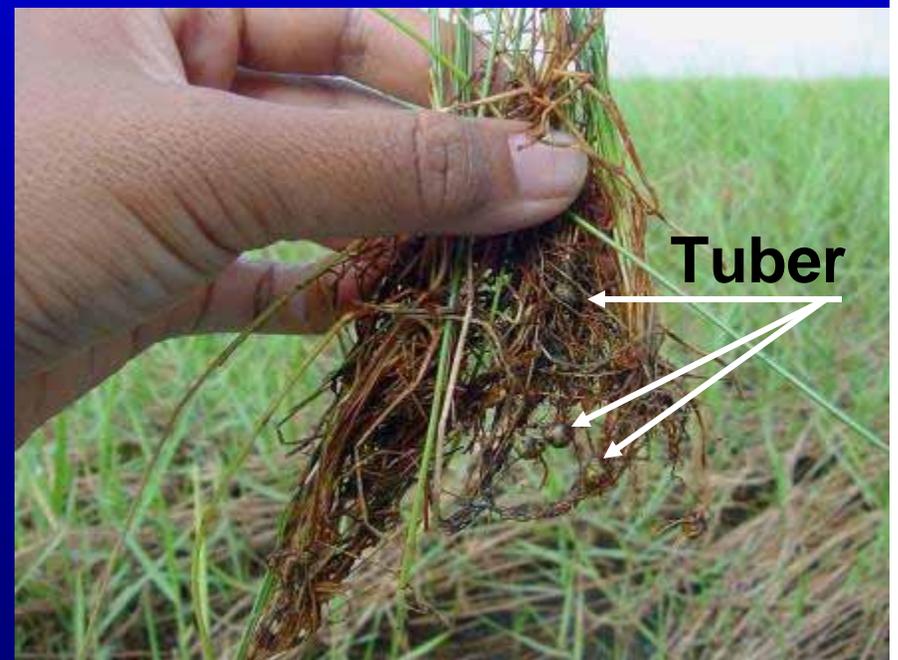


Vincent Munier



**TWO DRY SEASON
REQUIREMENTS:**

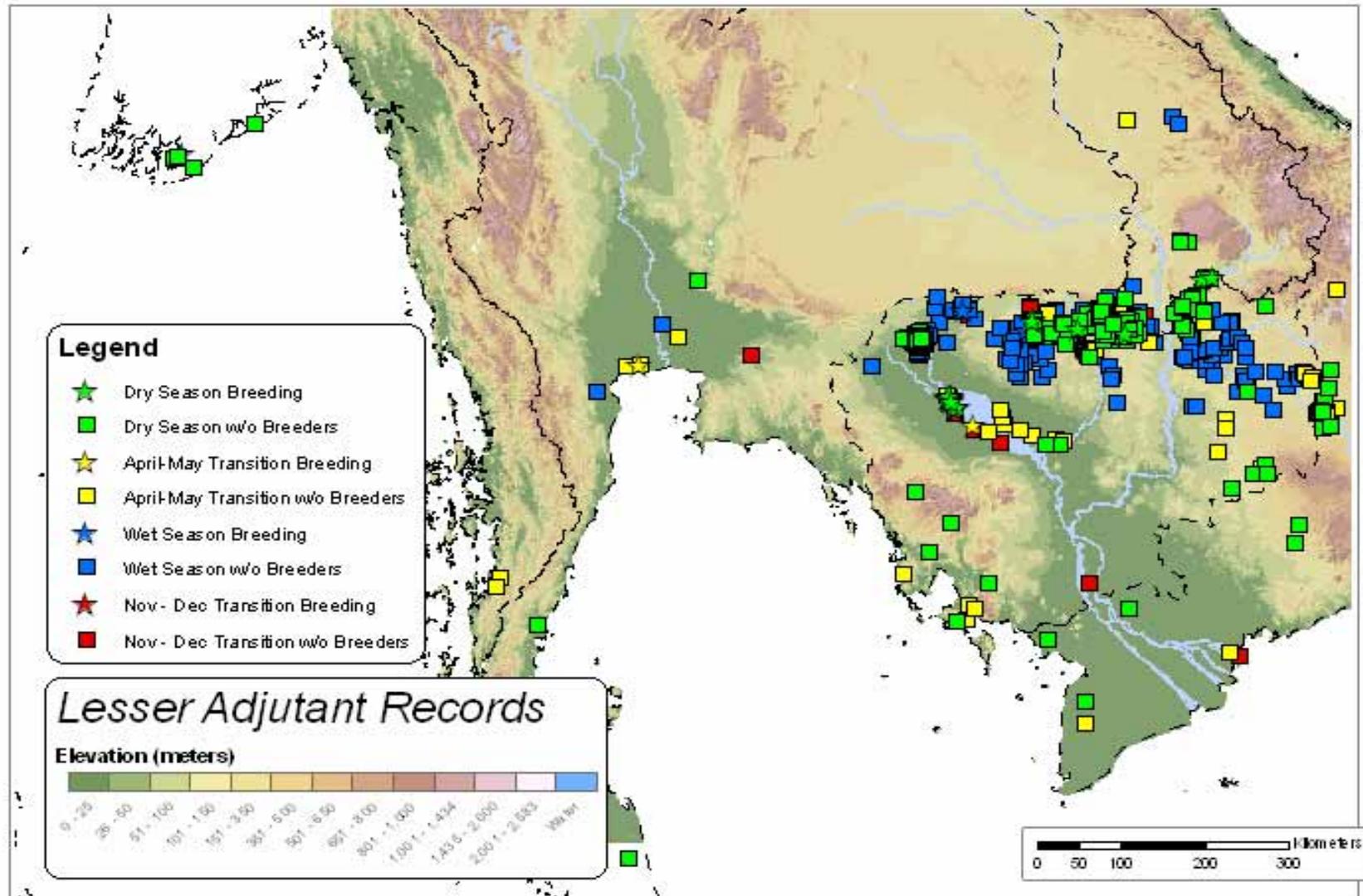
- 1.WATER TO DRINK**
- 2.ACCESS TO FOOD**
- 3.ABUNDANT FOOD**



**LESSER ADJUTANT:
A BIRD OF BOTH
DELTA AND SMALL
WETLAND SYSTEMS
(*BUT DIFFERENTLY*)**



Lesser Adjutants



Map by the International Crane Foundation 2007

→ NEST

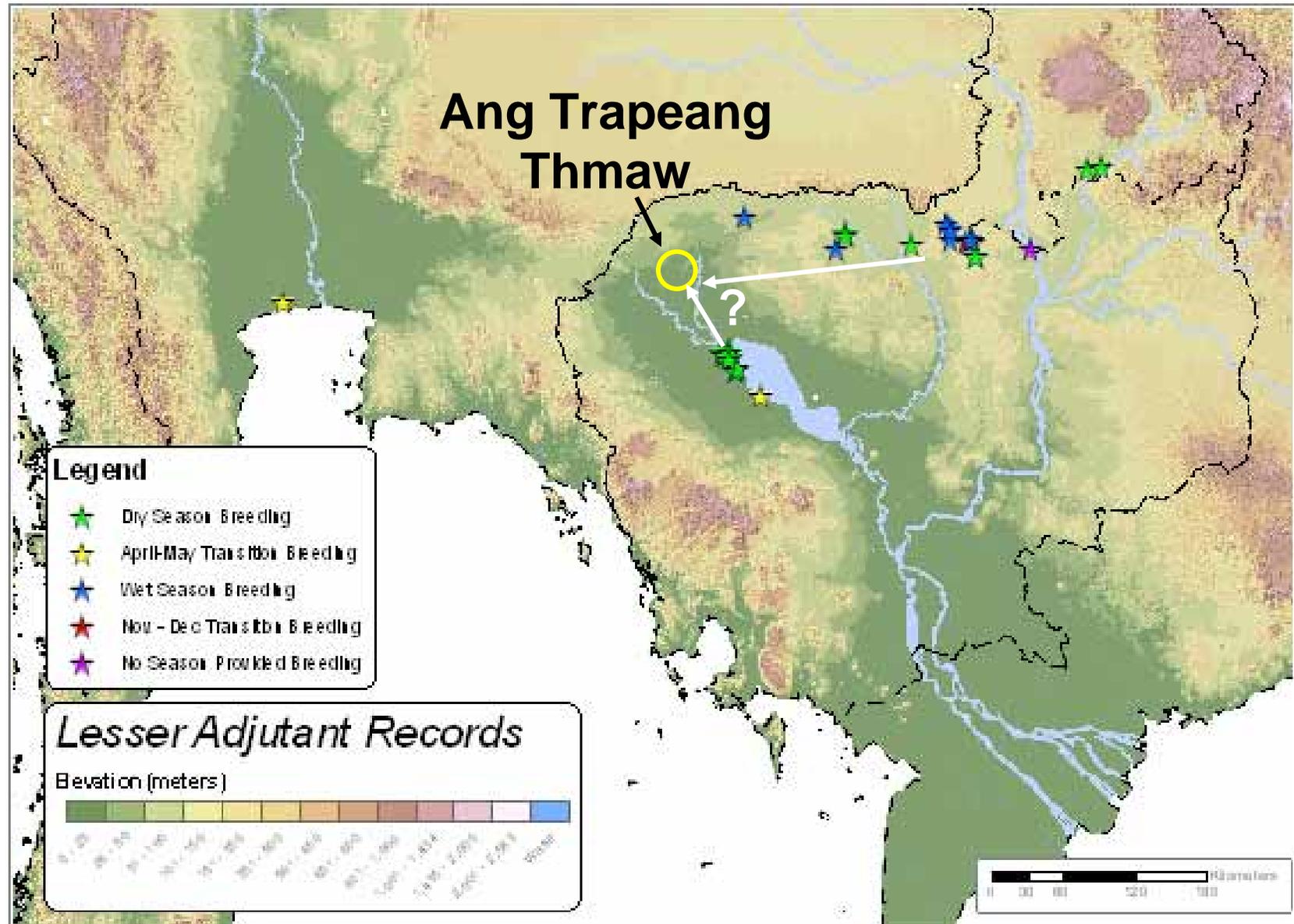
→ ADULT BIRD



NESTING LESSER
ADJUTANTS

**LESSER ADJUTANTS
NESTING IN RAINY
SEASON**

Lesser Adjutant Breeding Areas





Tran Triet

Tonle Sap Dry Season



Open Forest Rainy Season



ASIAN OPENBILL

Birds of the Delta

Painted Stork



CONCLUSIONS

- **OPEN FOREST ECOSYSTEMS AND THEIR SCATTERED WETLANDS ARE CRITICAL FOR NESTING WATERBIRDS LIKE SARUS CRANES AND LESSER ADJUTANTS**
- **FLOODPLAIN WETLANDS ARE IMPORTANT NON-BREEDING SEASON HABITATS FOR THESE SAME SPECIES**
- **DRY SEASON FLOODPLAIN HABITATS ARE ALSO IMPORTANT BREEDING HABITATS FOR A DIFFERENT GROUP OF LARGE WATERBIRDS SUCH AS OPEN-BILLED STORKS**